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ARCHIVES OF PEDIATRICS:

A MONTHLY JOURNAL DEVOTED TO THE DISEASES OF

INFANTS AND YOUNG CHILDREN.

EDITED BY

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TRANSACTIONS
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AMERICAN PEDIATRIC SOCIETY,

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THE CONSTRUCTION OF O'DWYER TUBES,
WITH A REPORT OF THREE HUNDRED AND
FIFTY CASES OF INTUBATION OF THE
LARYNX.

BY DILLON BROWN, M.D.,

New York.

SINCE the introduction of intubation in the treatment of stenosis of the larynx, by Dr. Joseph O'Dwyer, it has been my lot to see a great many cases, and it has been my good fortune to be intimately associated with its inventor during this time.

The object of this paper is to present some practical points derived from my experience, and to call special attention to the many badly-made tubes, and to the dangerous modifications of them, which not only cause permanent injury or death to the patient, but bring great disrepute upon one of the most brilliant and valuable operations of modern times.

The difficulty of the operation is often greatly underrated, and the importance of a wide experience in the treatment of these cases is seldom appreciated. Although it requires but a few seconds to insert the O'Dwyer tube, and the immediate results are most brilliant and gratifying, I know of no operation in surgery which is more brutal and shocking than the efforts of an unskilful man to intubate. With each miserable attempt, the child grows more frightened and more cyanotic, the face and clothes become smeared with blood, and, unless the operator is an unusually cool one, he loses his wits and does fearful damage to the larynx. This picture is neither overdrawn nor rare, and I venture to state that the great majority of deaths which have been reported as due to pushing down membrane was the result of unskilled efforts, and due either to apnoea from prolonged attempts at introduction, or to asphyxia from forcing the tube through a false passage.

O'Dwyer and I have operated upon over six hundred cases, and neither of us have ever had a death on the table due to pushing down membrane. It may be true that some men find but little difficulty to intubate, even without previous practice on the cadaver, but this is certainly exceptional. It seems odd that a writer should say that "any surgeon possessing a knowledge of the anatomy of the parts and a good degree of surgical skill will be able to easily and quickly introduce the tube, and to remove it when the proper time arrives," in direct contradiction to a statement in the same article that in attempting to remove the tube, he "made a complete failure" and deferred the operation till next day. Another man writes that in the first case he was at work nearly half an hour before he succeeded in introducing the tube, but in the second case he introduced it in about five minutes. Ten seconds would be a liberal allowance of time in which to do this operation. Many other examples could be given both from the literature of the subject and from my own personal knowledge.

To understand the value of a large experience you must encounter some accident or unusual feature. When membrane is pushed down before the tube, or it is loose in the trachea or bronchi, how shall we get it out before the child chokes to death? Its importance is seen in this and many other ques-

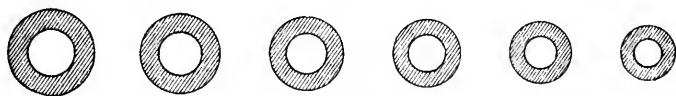
tions which constantly arise, and the solution of which depends entirely upon individual judgment and experience.

INSTRUMENTS.

There are three distinct sets of O'Dwyer tubes: one for children, containing six tubes; one for adults, containing ten tubes (although three tubes only are necessary for any form of *acute* stenosis in adults); and a third one, to be used only in children, for foreign bodies or loose membrane in the larynx. The set for adults differs from the well-known children's set in size only; but the tubes for foreign bodies differ very materially from the others.

O'Dwyer tubes.—The small tubes are made of brass, and then heavily plated with gold. The adult tubes are made either of brass (gold-plated) or of hard rubber, each material having special advantages over the other. The details of their manufacture are as follows: Through a solid rod of brass, a hole of the proper size is bored, and then hammered on a mandrel, so that the outline is elliptical and the antero-posterior

FIG. 1.



GEO. ERMOLD



Cross-section of tubes, natural size, before and after being hammered on a mandrel.

diameter of the opening is about twice its lateral diameter. It is thus made to conform to the shape of the larynx, and the greatest possible air-space is obtained with the least pressure upon the vocal cords. The next step is to file down the tube, so that it has the shape of a double wedge, the belly standing out laterally. By this means the tube is held in position and prevented from being coughed out. In taking away the extra metal, the walls of the tube should be made as thin as possible, except at the anterior surface of both the upper and lower ends, where considerable metal should be allowed to remain.

This enables the instrument-maker to round off the upper end, which presses against the base of the epiglottis, and which would otherwise be sharp and cause ulceration at this point. It also allows him to round off the lower end and do away with the sharp, cutting edge, which would otherwise cause ulceration of the anterior wall of the trachea, from the up-and-down motion of the tube with each act of deglutition.

FIG. 2.



Lower end of tube, showing the rounded and thickened anterior edge.

No matter how carefully the upper end is made smooth, there will be deep ulceration at the base of the epiglottis, due to pressure, if the tube is perfectly straight. This pressure is obviated by removing a wedge from the posterior edge of the tube, near the head, and, after knocking it back, it is firmly soldered in this position. The head, which is made in a separate piece, is now fastened over this. This head should be oval-shaped, and every part of it rounded off and smooth, so that there are no sharp edges to cut into the tissues. The hole for the string is now drilled through the head, just to the left of its anterior edge. It should not open into the calibre of the tube, for it would then offer a rough spot as a nucleus for the accumulation of secretions. The whole tube is now polished and heavily gold-plated.

FIG. 3.



Tube in rough, after removal of wedge-shaped piece.

The outside measurements are as follows: The length of all the adult tubes are the same,—namely, three inches. The lengths of the croup-tubes are $2\frac{5}{8}$, $2\frac{1}{2}$, $2\frac{1}{4}$, 2 , $1\frac{3}{4}$, and $1\frac{1}{2}$ inches, respectively; the antero-posterior diameters are $\frac{12}{32}$, $\frac{11}{32}$, $\frac{10}{32}$, $\frac{9}{32}$, $\frac{8}{32}$, and $\frac{7}{32}$ of an inch; and the width at the point of greatest swell, $\frac{12}{32}$, $\frac{11}{32}$, $\frac{10}{32}$, $\frac{9}{32}$, $\frac{8}{32}$, and $\frac{7}{32}$ of an inch, respectively.

The tubes for foreign bodies and loose membrane in the trachea and bronchi are made of very thin German silver, and are all short and of the same length,—namely, $1\frac{1}{8}$ inches. The

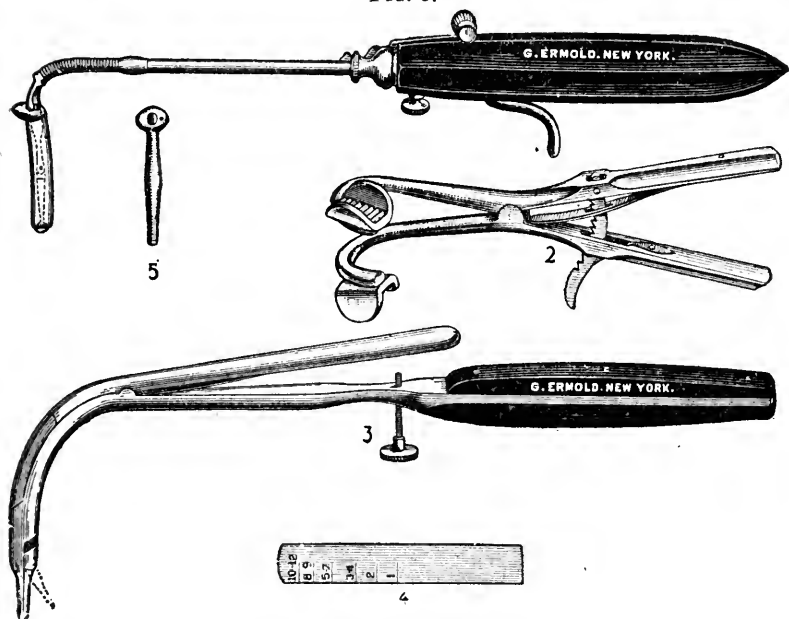
FIG. 4.



Head of tube.

head is small ; there is no retaining swell, because the tube is held in position by pressure from its large size, and the upper end of the tube is not thrown away from the epiglottis by taking out a wedge-shaped piece, because it is designed to let it remain in the larynx a few hours only. For the same reason, there is no objection to its lower edge being sharp, although during insertion the obturator should make a perfect probe-point with the tube. This set consists of seven tubes.

FIG. 5.



Correct set of croup-tubes.

They are cylindrical, but slightly smaller in calibre at their lower end. The diameter of the smallest one is $\frac{7}{32}$ of an inch, and there is an increase of $\frac{1}{32}$ of an inch with each tube. These tubes are intended to fill the larynx to its full sub-glottic capacity ; and it is confidently believed that any foreign body which could enter the larynx would be able to pass out through one of them, except those that increase in size by the absorption of moisture. In the management of loose membrane in the trachea and bronchi, it is the most satisfactory method that I am familiar with ; and, if some means can be devised for detaching and

breaking up the partly-adherent membrane, I believe that it will give us the solution of this problem,—the most difficult that forces itself upon the attention of the intubator.

FIG. 6.



Set of tubes for foreign bodies or loose membrane in trachea and bronchi.

In the use of these tubes, one warning should be strongly emphasized, namely, that they are kept in the larynx not by a retaining swell, but from their great width by direct pressure upon its narrow parts, and therefore if they are allowed to remain in position more than a few hours deep ulceration will be the consequence.

FIG. 7.



Obturator.

Obturers, gag, etc.—The obturers are made in four pieces. The shank is jointed to facilitate its removal after the tube is placed in the larynx. The probe point, which is soldered to its lower end, must fit the tube so snugly that no rough edges are left to catch membrane and push it down. The greatest diameter of this tip should fit exactly at the edge of the tube, otherwise it will fail to present a perfect probe-point, and it will cause difficulty in withdrawing the inserter. This is especially true of the tubes for foreign bodies, and great care should be taken to scoop away all that portion of the tip which remains within the body of the tube. The head of the obturator should fit the tube for some little distance to prevent it from wobbling antero-posteriorly.

The O'Dwyer *gag* has been modified by Denhard, Dennison, Sajous, and many others, but the simplest and most satis-

factory is that of Denhard, the construction and use of which can be seen in the figure. The *scale* is an arbitrary measure, which enables the operator to select the proper tube. The tube which reaches the line marked 1 is intended for a child up to that age; the tube which reaches the line marked 2 is intended for a child up to that age; and the same for the lines marked 3 to 4, 5 to 7, and 8 to 10. The largest tube is intended for children who are more than ten years old but have not reached puberty. Of course, much individual judgment is sometimes called for in the selection of the proper tube to use, and it may be necessary to take a larger or smaller tube than the one indicated by the scale.

The *thread* should be strong and made of braided silk. The twisted silk is apt to unravel so that, when it is withdrawn, it gets caught and pulls the tube out with it.

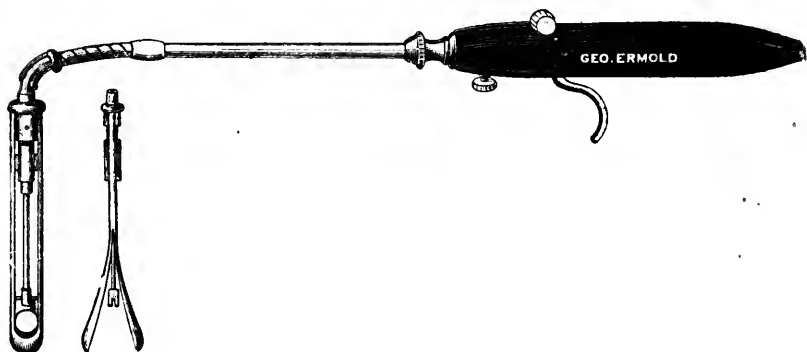
The *introducer* is usually made correctly, its construction being very simple. It can be taken apart and cleaned very easily. The only difference between the one for children and for adults is the size. However, in the set for foreign bodies it has a longer curve, and, instead of the two flanges on either side which push off the tube, it has a single one behind, which runs along a groove in the head of the obturator.

The construction of the *extractor* is rather complicated, but, with a proper one for a model, the maker should experience no great difficulty in copying it. Three very important points should be remembered. *First*, the jaw which moves when the instrument is opened should be the one nearest the operator, while the opposite jaw is a continuation of the handle. This greatly facilitates the removal of the tube, owing to its shape and direction. *Second*, when the jaws are closed, the end of the instrument should not be sharp, but should present a blunt probe-point, otherwise it will stick into the soft laryngeal tissues, and, besides making a false passage, will do great damage when it is opened. *Third*, no instrument should ever be used which does not have a regulating screw in the handle. It prevents the jaws from opening wider than is necessary, and it is of the greatest importance, even when the instrument is used by the most expert operator. If the jaws are allowed to open to their full extent in the larynx of a small child, much

damage will be done even if the instrument is not withdrawn. Of course in the latter case the injury is much greater, and it is possible in this way to split open the cricoid, so as to allow the tube to sink down deeply into the larynx, and might result in an abscess or some more serious complication.

Membrane extractors.—Many ingenious devices have been used for the removal of loose membrane from the trachea and bronchi ; but the problem remains unsolved. With the ex-

FIG. 8.



ception of the new foreign body tubes of O'Dwyer, every attempt in this direction has been an absolute failure, and even these tubes are only a step in the right direction. The apparently insurmountable obstacles which prevented the practical realization of Dr. O'Dwyer's ideas have been overcome by him, one after the other,—to prevent ulceration of the cords, to prevent the expulsion of the tube by coughing, to prevent ulceration at the base of the epiglottis and at the lower end of the tube, and the many purely mechanical problems which were constantly presenting themselves. More recently, the difficulty in feeding after intubation was solved by Dr. Casselberry, of Chicago, by the very simple means of posture, after many unsuccessful attempts with a complicated and often dangerous artificial epiglottis, or with various changes in the shape of the head of the tube. The power to get rid of loose membrane in the trachea and larger bronchi will probably be obtained by means of the foreign body tubes,

the link which is wanting being some method of breaking up the membrane and freeing it from its attachments in the bronchi.

The illustration shows a tube devised by Dr. O'Dwyer, which enables the trained nurse to quickly remove the tube with the finger in case of emergency. Its practical value has not been fully tested, and fortunately the necessity for its use is not frequently met with.

Faulty tubes.—It is an impossibility, as far as O'Dwyer's experience and mine go, for an instrument-maker to copy a perfect tube unless the details of its construction are explained to him; and after this explanation, it is only with the greatest care, and after many failures, that they succeed. Therefore it is not surprising that the great majority of the tubes which are in use are imperfect and crude. Most of them will certainly do harm, and many of them will involve the life of the patient in great danger.

These seem like strong terms, but they must seem very mild to those who understand the vast importance of having all the small details in the construction of the tubes made perfect, and who know how the country is being flooded with a great number of crude and improperly-made instruments.

The most common defect is the failure to throw the head of the tube away from the epiglottis by removing a wedge-shaped piece from its posterior edge. This neglect will positively cause ulceration, even to complete perforation, at the base of the epiglottis. Other common faults are rough points on the inner walls which form nuclei for the accumulation of secretions; a sharp lower edge which cuts into the anterior wall of the trachea with each act of deglutition; sharp edges on the head; and the failure to round off the upper and anterior portion of the tube.

The tube which I now show you was obtained from a physician, who returned to Mr. Ermold a perfect set of in-

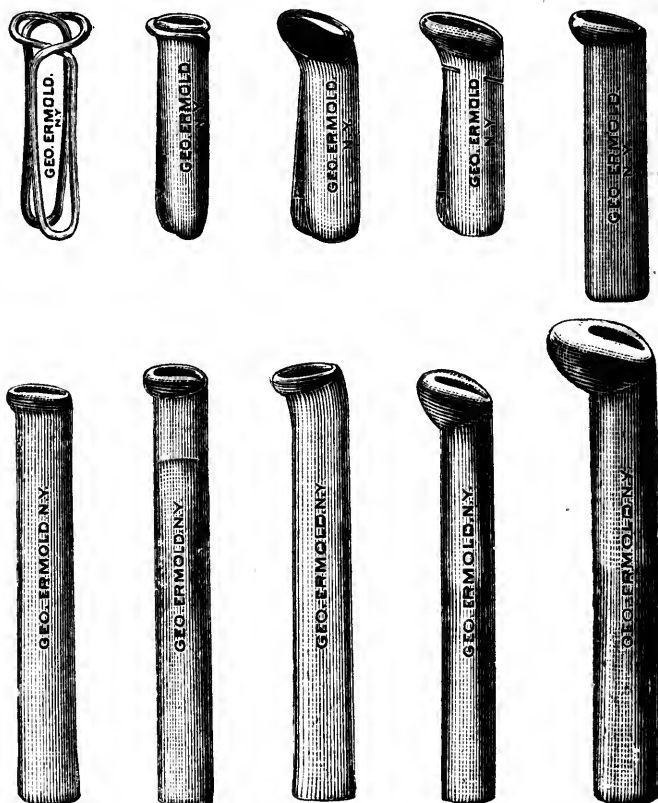
FIG. 9.



Tube with jointed head, which enables a trained nurse to remove it quickly in case of emergency.

struments, and sent this beautiful specimen as a model of the kind of tubes which he was accustomed to use and which he desired. It seems to possess every possible fault in the construction of an O'Dwyer tube and still retain a resemblance to one. It is a crude specimen of work, the lower end is sharp,

FIG. 10.



Evolution of the tube.

the body of the tube is perfectly straight throughout its length, the anterior portion of the head is not rounded off, the hole for the thread opens into the calibre of the tube, and the edges of the head itself are nearly as sharp as a knife. This type of instrument is unfortunately not rare, and it is no exaggeration to say that the majority of tubes that are used should never be placed in a larynx.

It is a curious fact that, as far as I know, every modified O'Dwyer tube has radical defects, and that every real improvement in the tube itself has emanated from the original inventor. These sketches give at a glance the evolution from the first tube (a simple wire frame, which was used only on the cadaver) to the shape now in use. It will be seen that the principle of almost every so-called new modification had been previously tried and found wanting.

The Stoerck tube is perfectly straight, it is rounded off neither below nor above, and is held in position not by a retaining swell, but by its great pressure against the sides of the larynx. The probe-point of the obturator is drilled with holes, and the advantage claimed for it is that the child can breathe during the time of introduction. When we remember that it takes only a few seconds to do the operation, this rather theoretical gain is more than counterbalanced by its very glaring faults.

The Sajous modification has never been used in a living subject, otherwise it would never have been presented to the public. The bivalve principle was extensively tested by O'Dwyer, and it was found impossible to prevent such a tube from clogging up rapidly, usually in a couple of hours, and never longer than twenty-four. This is a serious defect, which would always count against any number of advantages, especially when they are purely theoretical. The modification of Dr. Thilo possesses the same fault, and, in addition, it is cylindrical.

Dr. Hoadley's suggestion, to insert the tube so that the posterior flange comes anteriorly, is certainly wrong; and deep ulceration at the base of the epiglottis will be the constant result. Even with a straight tube this will take place, as has been frequently demonstrated in the dead-house. The "deep-tubing" of the same writer, as done with modified tubes, has much to recommend it, if it overcomes the difficulty of swallowing. However, this is not so important, since Dr. Casselberry proved that this difficulty is absolutely obviated by posture. Hence, its advantage hardly compensates for the increased amount of pressure on the anterior portion of the larynx, and for the increased danger of the laryngeal tissues swelling over the top of the tube and obstructing it. The

Cases of Intubation.

Date.	No.	In the practice of	Sex.	Age.	Duration of laryngeal symptoms.	Duration of diphtheria.	Urine.	Cause of death.	Complications.	Result.
Nov., 1889.	301.	John H. Ripley.	F.	8 yrs.	3 days.	6 days.	Albumen.	Extension to bronchi.	.....	Died 2½ days after intubation.
Dec. 1889.	302.	W. J. Burnett.	F.	2 yrs. 8 mos.	3 days.	Pres.	Not examined.	Extension to bronchi.	.....	Died 2½ days after intubation.
Dec., 1889.	303.	J. E. Clausen.	M.	5 yrs.	2 days.	Pres.	Albumen.	Extension to bronchi.	Measles.	Died 2½ days after intubation.
Dec., 1889.	304.	J. Lewis Smith and S. H. Desau.	M.	15 mos.	2 days.	Pres.	Albumen.	Extension to bronchi.	Rickets.	Died 1 day 7 hours after intubation.
Dec., 1889.	305.	C. E. Young and W. A. Fanning.	F.	16 mos.	2 days.	None.	Not examined.	Extension to bronchi.	.....	Died 1½ days after intubation.
Dec., 1889.	306.	G. D. Spor.	F.	4 yrs. 3 mos.	6 days.	7 days.	Albumen.	.....	.....	Recovered; wore tube 5½ days.
Dec., 1889.	307.	G. V. Haun.	M.	4 yrs. 1 mo.	4 days.	6 days.	Albumen.	Sudden heart-failure.	.....	Died 3 days after intubation.
Dec., 1889.	308.	W. Freudenthal and F. de Kraft.	M.	4 yrs.	4 days.	Pres.	Not examined.	Extension to bronchi.	Extension to bronchi.	Died 7 hours after intubation.
Dec., 1889.	309.	W. J. Burnett.	M.	16 mos.	3 days.	Pres.	Not examined.	.....	.....	Recovered; wore tube 7 days.
Dec., 1889.	310.	W. A. Fanning.	M.	17 mos.	5 days.	7 days.	Not examined.	Asphyxia without tube.	.....	Died 1 day after intubation.
Jan., 1890.	311.	G. A. Hayunga.	F.	6 yrs. 3 mos.	4 days.	10 days.	Albumen.	Extension to bronchi.	.....	Died 2½ days after intubation.
Jan., 1890.	312.	Nell O. Fitch.	F.	3 yrs. 5 mos.	2 days.	5 days.	Not examined.	Extension to bronchi.	.....	Died 4 days after intubation.
Jan., 1890.	313.	W. J. Burnett.	M.	13 mos.	1 day.	None.	Not examined.	Sudden heart-failure.	Measles.	Died 4 days 5 hours after intubation.
Jan., 1890.	314.	A. G. Gerster and C. F. Kremer.	M.	4 yrs.	2 days.	Pres.	Albumen.	Nephritis.	.....	Died 3 days after intubation.
Jan., 1890.	315.	J. Lewengood and A. T. Swan.	M.	5 yrs. 6 mos.	5 days.	7 days.	Albumen.	Extension to bronchi.	.....	Died 3 days 8 hours after intubation.
Feb., 1890.	316.	Leo Schnepf.	M.	13 mos.	2 days.	Pres.	Albumen.	Extension to bronchi.	.....	Died 3 days after intubation.
Feb., 1890.	317.	C. F. Kremer.	F.	2 yrs. 6 mos.	2 days.	7 days.	Albumen.	Nephritis; convulsions.	.....	Died 2 days after intubation.
Feb., 1890.	318.	G. A. Hayunga.	M.	5 yrs.	1 day.	5 days.	Albumen.	Slow heart-failure.	Sepsis.	Died 1 day after intubation.
Feb., 1890.	319.	J. Lewis Smith and F. M. Warner.	F.	17 mos.	2 days.	3 days.	No albumen.	Pneumonia.	.....	Died 5 days after intubation.
Feb., 1890.	320.	C. E. Young and P. E. Tiemann.	F.	2 yrs. 7 mos.	3 days.	Several days.	Albumen.	.....	.....	Recovered; wore tube 16 days 2 hours.
Feb., 1890.	321.	S. B. Allen.	F.	7 yrs.	2 days.	4 days.	Albumen.	Slow heart-failure.	Sepsis.	Died 1 day after intubation.
Feb., 1890.	322.	J. Lewis Smith and Joseph Anderson.	M.	3 yrs. 6 mos.	5 days.	Pres.	Albumen.	.....	.....	Recovered; wore tube 5 days 22 hours.

Mar., 1890.	323.	S. S. Jones.	F.	9 yrs. 6 mos.	1½ days.	Pres.	Albumen.	Extension to bronchi.	.....	.....	Died 3½ days after intubation.
Mar., 1890.	324.	J. Harvie Dew.	F.	7 yrs.	1 day.	3 days.	Albumen.	Sepsis and extension.	Extension and sepsis.	.....	Died 12 hours after intubation.
Mar., 1890.	325.	A. Jacobi and Leo Schnepf.	F.	3 yrs.	4 days.	.....	Albumen.	Pneumonia.	.....	.....	Died 2 days after intubation.
Mar., 1890.	326.	H. Kolb.	F.	4 yrs.	5 days.	None.	Albumen.	Extension to bronchi.	.....	.....	Died 4 days after intubation.
Mar., 1890.	327.	H. H. Curtis and J. T. Kennedy.	M.	7 yrs.	2 days.	3 days.	Not examined.	.....	.....	.....	Recovered; wore tube ½ hour.
Mar., 1890.	328.	J. W. Stronach.	F.	4 yrs.	4 days.	8 days.	Albumen.	Extension and sepsis.	.....	.....	Died 2½ days after intubation.
Mar., 1890.	329.	H. G. Lytle.	M.	3 yrs. 3 mos.	2 days.	Pres.	Albumen.	Cerebro-sphal meningitis.	.....	.....	Died 4 days after intubation.
Mar., 1890.	330.	J. W. Stronach.	F.	22 mos.	1 day.	Pres.	Not examined.	Exhaustion.	.....	.....	Died 2 days after intubation.
Mar., 1890.	331.	Edward Sanders.	F.	5 yrs.	1½ days.	Pres.	Not examined.	Slow heart-failure.	.....	.....	Died 1 day after intubation.
Mar., 1890.	332.	E. J. Pratt.	M.	2 yrs.	1 day.	7 days.	Albumen.	.....	.....	.....	Died 18 days after intubation.
Mar., 1890.	333.	S. S. Jones and C. W. Van Wert.	M.	9 yrs.	1 day.	None.	Not examined.	.....	.....	.....	Recovered; wore tube 1 day.
Mar., 1890.	334.	E. M. Moffett.	F.	5 yrs. 6 mos.	4 days.	Pres.	Albumen.	Extension to bronchi.	.....	.....	Died 1½ days after intubation.
April, 1890.	335.	Charles Schram.	M.	14 mos.	3 days.	None.	Albumen.	.....	.....	.....	Recovered; wore tube 19 days.
April, 1890.	336.	R. H. Buck.	F.	3 yrs. 7 mos.	4 days.	None.	Albumen.	Sudden heart-failure.	.....	Pneumonia.	Died 1 day after intubation.
April, 1890.	337.	C. E. Young.	F.	3 yrs. 9 mos.	5 days.	7 days.	Albumen.	Sepsis.	.....	Sepsis.	Died 3½ days after intubation.
April, 1890.	338.	G. V. Hann.	F.	2 yrs.	2 days.	None.	Albumen.	Extension to bronchi.	.....	Scarlet fever.	Died 4 days after intubation.
April, 1890.	339.	E. W. Derby.	F.	7 yrs.	1½ days.	None.	Not examined.	.....	.....	.....	Recovered; wore tube 5½ days.
April, 1890.	340.	J. C. Schmincke.	F.	28 yrs.	3 days.	5 days.	Albumen.	Extension to bronchi.	.....	.....	Died 2 days after intubation.
April, 1890.	341.	M. M. Dunton.	M.	8 yrs. 6 mos.	4 days.	14 days.	Albumen.	Extension to bronchi.	.....	Extension.	Died 12 hours after intubation.
May, 1890.	342.	J. A. McLoughlin.	M.	4 yrs.	2½ days.	Pres.	No albumen.	Asphyxia.	.....	.....	Died 2 days after intubation.
May, 1890.	343.	R. B. Burton.	F.	6 yrs.	3 days.	None.	Albumen.	.....	.....	Pneumonia.	Recovered; wore tube 6 days.
May, 1890.	344.	W. J. Gardineer.	F.	4 yrs.	5 days.	Pres.	Albumen.	.....	.....	.....	Recovered; wore tube 6 days.
May, 1890.	345.	Henry Schroeder.	M.	2 yrs. 7 mos.	1 day.	3 days.	Albumen.	Extension and sepsis.	.....	Sepsis.	Died 1 day after intubation.
June, 1890.	346.	My own.	F.	2 yrs. 4 mos.	4 days.	Pres.	Albumen.	.....	.....	Scarlet fever.	Recovered; wore tube 6 days.
June, 1890.	347.	G. V. Hann.	M.	5 yrs.	1 day.	1 day.	Albumen.	Extension to bronchi.	.....	.....	Died 2 days after intubation.
June, 1890.	348.	J. A. Roth.	F.	22 mos.	11 days.	Pres.	Albumen.	.....	.....	.....	Recovered; wore tube 16 days.
June, 1890.	349.	M. M. Dunton.	F.	6 yrs.	2 days.	6 days.	No albumen.	.....	.....	.....	Recovered; wore tube 5½ days.
Oct., 1890.	350.	J. R. Conway.	F.	2 yrs.	3 days.	7 days.	Not examined.	Extension to bronchi.	.....	Extension.	Died 1 day after intubation.

cup-shaped head, to facilitate the extraction of the tube, seems to be an excellent idea. O'Dwyer used a funnel-shaped head very early in his experiments, but abandoned it, as he thought that it offered greater facility for the entrance of fluids in drinking. The question of long or short tubes can be settled only by experience. Each has its advantages in individual cases; but I am convinced that the long tube is preferable, for the reason that any loose membrane in the trachea is less liable to obstruct it (from a valve action), and, also, the long tube is retained more easily.

Tasher's tubes have no advantages that I can see, and have three serious drawbacks. The head and the lower end of the tube is sharp and presents a cutting edge, which will do damage; the laryngeal tissues will swell over its top on account of its deep position; and, the most important defect of all, it is held in place not by a retaining-swell, but by pressure against the narrow parts of the larynx.

The artificial epiglottis, which was first devised by Waxham, and has since been copied by others, increases the danger of asphyxia, both by presenting a nucleus for the accumulation of secretion, and by acting as a valve, which cuts off inspiration. Its usefulness was destroyed as soon as it was shown that a child could swallow perfectly well after intubation, if the head is placed in such a position that the pharynx is lower than the larynx. I believe that Waxham has abandoned its use.

It is frequently asked why the tubes cannot be cast, thereby reducing the price and obtaining uniformity in size and shape. It is impossible to do this in one piece, on account of the backward direction which the calibre takes near its upper end. Ermold has succeeded in casting a tube in two pieces, which are soldered together. However, it was found necessary to abandon their use on account of the rough spots or cracks which appeared in the tube, and formed nuclei for the accumulation of secretions. Even with the greatest care these defects could not be avoided.*

* Ermold has apparently solved this problem in the most ingenious manner, but it is too early to make any positive statements.

This makes a total of three hundred and fifty cases, with one hundred recoveries, or 28.5 per cent. The details of cases 1 to 200 were published in the *New York Medical Journal* for March 9, 1889; and of cases 201 to 300, in the *American Journal of the Medical Sciences* for 1891. During the period of time covered by the present report—namely, from November, 1889, to June, 1890—I saw six cases which recovered without operation. They occurred in the practice of Dr. W. J. Burnett, Long Island; Dr. C. E. Young, Dr. R. M. Cramer, Dr. W. A. Hawes and Dr. S. Baruch, Dr. D. F. King, and Dr. Joseph O'Dwyer. Two cases died without operation, one with Dr. J. A. McLoughlin and one with Dr. W. A. Hawes. Three cases died before my arrival, one with Dr. W. A. Fanning; one with Dr. DeWitt Hitchcock and Dr. B. G. Strong; and one with Dr. J. E. Kelly and Dr. J. J. Henna. It should be remembered that this does not represent the real number of patients which recovered without operation, but only the percentage of those cases in which the stenosis became severe enough to cause alarm and warrant a consultation to determine the advisability of operative interference.

"THE KENSINGTON,"

101 East Fifty-seventh Street.

DISCUSSION.

DR. EARLE.—I have nothing to say in the direct line of the paper, for I am one of those who cannot, who *cannot* intubate the larynx, and I am honest enough—and it does not take much courage either—to tell my professional friends in Chicago that I cannot do it. I think there are a good many of them who try to do it who should be as honest as I am, and acknowledge their inability. I wish to commend the first pages of the doctor's paper. For while I believe this matter of intubating the larynx is one of the most brilliant things which have been brought before the profession in years, and I am as proud as anybody can be that American physicians have had more to do with it than those of any other nation, yet I say with a great deal of sorrow and shame that there are, I believe, though perhaps not in New York, Boston, nor Philadelphia, a certain number of people going around trying to intube the larynx, but killing the children. I have seen some of the most barbarous, some of the most hor-

rid surgery that has ever been attempted, it appears to me, attempted by some of these people who thought that in order to be in the current they must intube the larynx. I do not suppose it is possible to compute the number of the instruments sold to physicians in our locality, and yet we have but two physicians who do the operation nicely. Dr. Maxwell does it without any doubt best of anybody west of New York, Philadelphia, and Boston. My friend, Dr. Brown, says he does it in about four or five seconds. I think Dr. Maxwell does it in five or six seconds. He does it so successfully that he is through before I know what I am about. I only commend the work of these gentlemen who have brought the operation to so perfect a state. I think this society should take some action to prevent everybody from undertaking it. The greatest blunders are made in trying to take the tube out. I have seen men plunge and go through all sorts of motions trying to find the tube, and sometimes they have had to do tracheotomy in order to find it. In fact, I am strongly of impression that a few of them have not been found to this day.

DR. CAILLÉ.—I can emphasize the difficulties in intubation to which Dr. Brown has called attention. It seems to me that every man who wishes to intubate should have the utmost confidence in his ability, and he cannot acquire that confidence, as a rule, until he has first practised on the cadaver.

There are one or two other practical points which I consider important. On putting the finger into the mouth to feel for the epiglottis, we frequently find it stiff and hard, while in other instances it is soft and pliable. In the latter cases the entrance to the larynx is usually free; you can feel the funnel-shaped entrance, and can introduce the tube without much difficulty. In the other instance, in which the epiglottis is stiff and hard, there is frequently membranous deposit over the epiglottis which extends low down, and in introducing the proper sized tube, say No. 4 for a seven year old child, you may happen to detach the membrane, and if you do not know how to manage afterwards, serious results may follow. In such cases I prefer to introduce a smaller-sized tube, which I lubricate with iodoform vaseline for the same reason that one would lubricate a sound before introducing it into the urethra. The vaseline has seemed to facilitate the introduction of the tube, although I must say that I have never experienced any difficulty in this direction.

Another point concerns the string. The string in the tube can be easily pulled out as a rule, but sometimes it "catches."

I have noticed that if you place your finger on the head of the tube and pull on the lower end of the string, it will come out easier than if you pull on the upper end. Therefore it is my custom not to tie the ends at all, but to leave the two ends loose without, and to tie a little knot in the lower string to distinguish it from the upper.

Another point relates to cleansing the tube. I have seen a great many dirty tubes, and I fear a good many filthy ones are introduced. The tube which has been used, and is to be used again, should be left in caustic potash solution twenty-four hours; it should then be thoroughly brushed with a bristle brush, and a string, or something of the kind, should be drawn through the small opening in the head. The tube should afterwards be washed thoroughly, placed in alcohol, and lit while some of the alcohol is still on it. That, I think, will thoroughly cleanse it, and if it is disinfected once more immediately before it is used, I hardly think any danger can result. The best plan of all is to employ a new tube for every patient.

SIMPLE BUT EFFICIENT MEDICATION IN PEDIATRICS.

BY CHARLES WARRINGTON EARLE, M.D.,

Chicago.

“To cure quickly, safely, and pleasantly” is a maxim which has come down to us from the ancients. In many instances I fear the entire proposition is forgotten, even that portion relating to the pleasant administration of remedies.

In choosing this as my topic I trust that no one will imagine for an instant that I am an advocate of the sugar-water school, or that I am a pessimist in regard to the action of drugs. On the contrary, I am daily surprised to see gentlemen in whom I have the greatest confidence, except when they practise medicine, trifle with disease, the pathological results of which are not only visible but palpable, in that they treat these conditions with alleged remedies which cannot by ordinary means or by chemical or microscopic methods be demonstrated as existing.

I believe in medication always, when needed, but at the same time belong to that class of physicians who believe it quite as much my duty to say to people, "You need no medicine whatever," if such be the case, as to prescribe an heroic dose when it is indicated. When, however, good diet, a better hygiene, more air and sunlight will not suffice to save, and it is necessary to give medicine, we owe it to our patients, particularly our little patients, to prescribe a drug or drugs so that they shall be cured not only quickly and safely, but, if possible, pleasantly.

I shall show, or at least attempt to show, that in many cases this is not done; that drugs are frequently given when they are not needed; that when needed, more than the amount necessary is frequently prescribed, and that when prescribed, absolutely no care, in many instances, is exercised to make the combination palatable.

In the first place, many cases to which we are called need no medication whatever; that is particularly true of first visits. There is a little irritative fever, a slight indigestion, a trifling nervousness, a few more bowel movements than usual, or the mother simply imagines in her solicitude that the baby is threatened with something. Many conditions similar to these are frequently seen, and they will recover,—correct themselves without medicine; indeed better without than with medicine. The diagnosis is frequently made by a parent, and the doctor is summoned to prescribe for a fever or for malaria, or for worms, and before he sees the little patient he has devised a combination of drugs for it. Something to reduce the pulse; to correct the secretions; something to regulate the excretions. How much better it would be for this little one to give it nothing, for in many cases the patient will be entirely well in a few hours.

During the premonitory stage in many diseases it cannot be determined what the child is to need for a few hours, and yet in a great number of cases several drugs are ordered only to be replaced by others, when in a few hours the indications are plain. I do not advise against the administration of medicines when they are indicated; I know that by the judicious use of a drug, or drugs, diseases may be modified, a convulsion pos-

sibly averted. But the indication for its use should be clear, —we should not give a drug simply to make a show of prescribing.

In the second place, when a single drug is indicated we find in many cases too many prescribed, and a child's appetite destroyed and its nutrition impaired by the procedure. This does not apply to diphtheria, or any other disease which at times is local, and should be combated with vigor and promptness and frequency in order to keep it from becoming a general disease, but it does apply to that vast category of complaints where it is absolutely necessary to improve nutrition.

Take the general diseases, such as tuberculosis, scrofula, and rickets; in addition to the very best diet, good air, and surroundings, what I call the medicinal medicaments, cod-liver oil, malt, hypophosphites, etc., why the necessity of giving aconite for the fever, a little nitre because of its effect on the urinary secretions, or a little calomel for the liver? It is a loss of time, an infliction on the patient.

Again, take the eruptive fevers during the first stage: why give a little aconite or belladonna to reduce the fever? We want some fever; we all prefer a temperature of 102° to one at 98°. Why unload the portal circulation and in so doing probably irritate to a greater degree the already irritated mucous membrane of the alimentary canal? Look out for the throat in scarlet fever, which here will give more trouble than any other organ (excepting possibly the kidneys), and for the lungs in measles. This should, it occurs to me, be the rule in general. Do not waste time and annoy the patient by doctoring a symptom; attack the disease.

And then in convalescence,—how much it is retarded by the reckless administration of drugs. After a baby has passed through a fever, or some disease of the lungs, it does not need something to act on its liver or kidneys, or to clear up its tongue which is quite frequently normal when a little coated, or some alkali to correct a fancied acidity; but it does need something to eat, and it can't eat as long as the stomach is filled with nauseous medicines. This condition is well illustrated by a case I saw late in the year 1889. The child, around whom all the love and devotion and nonsense of a

young father and mother clustered, had the "Grippe." Its temperature had been rather high and the bronchial catarrh really severe. The attending doctor had diagnosed pneumonia, and for this I was summoned. After a few days it began to convalesce, and I left it with the understanding that some restorative medicines, probably the hypophosphites with a little pepsin and possibly a minute dose of tincture of nuxvomica, was to be administered. In two days I was recalled and was informed that the appetite was poor, the pupils dilated, the head was being thrown from side to side, and the doctor and parents were sure that cerebral congestion, if not meningitis, was present. By actual count that child was taking nine different drugs, hardly one of which was indicated. It was having bicarbonate of sodium, iodide of potassium, muriate of ammonia, tincture of aconite, tincture of belladonna, tincture of camphor, and a little opium, submuriate of hydrargyrum, to which should be added camphorated oil externally, supplemented and strengthened by a plaster of belladonna ointment. Is it any wonder that that child could not eat, that its pupils were dilated? The wonder to me is that it was alive. I solemnly declare that I have been more alarmed for fear that some doctors would kill their little patients with drugs than that the cases would terminate fatally from the disease.

We now come to pleasant medication. Of course, this is not by any means an easy task; sometimes it is impossible without sacrificing the usefulness of the drug. With care, however, we can do much; we can avoid prescribing large mixtures, can stop giving tablespoonful doses, and in many instances give our tinctures in water. Happily the custom of ordering four-, six-, and eight-ounce bottles of medicine has nearly ceased. It should be stopped entirely except in those cases where tonics and cough-mixtures are given, when it is necessary to see a patient but seldom. In acute sickness it is usually quite all that is needed to prescribe one-ounce and occasionally two-ounce mixtures. In the administration of most of the tinctures, particularly aconite, veratrum, digitalis, as well as Fowler's solution, etc., where the dose is from a fraction of a drop to one or two drops, it is best for the young physician to carry the drug and measure out enough at each

visit for the coming twenty-four hours. This gives a pleasant medicine, and it is also economical, and to young practitioners it is a custom which will make them friends. It is good practice, too, for physicians to always be ready to give the first dose of medicine; it may not be much, but it convinces the people that you are ready for emergencies; this I say more particularly to those young in the profession.

I have already indicated the manner in which most of the tinctures may be given so as to be pleasant. A fraction of a drop of the tincture of opium (enough for the young infant) can always be given in water; quinia by inunction, in tablets, with chocolate, or in syrup of licorice.

The *syrupus ferri iodidi* should always be given in glycerin. This conceals the taste fairly well. The hypophosphite and malt preparations are not refused by children, and the same may be said of many children in regard to Scott's emulsion of cod-liver oil or hydroleine.

With a little care we can treat a case running through several days, if not weeks, with but little display of drugs. Nothing makes the people appreciate the expensiveness of a doctor so much as, at the end of two-weeks' sickness, having a table full of bottles partially emptied. And nothing disgusts the patient to such an extent as to witness the doctor every morning commence to write his usual two or three new prescriptions; a part only at most will be taken, the remainder to go to make up the tableful, which is to be removed at the conclusion of the sickness.

I have treated a typhoid in a child, the sickness continuing three weeks, with three half-ounce bottles of medicine,—tincture of *veratrum viride*, tincture of opium, and aromatic sulphuric acid.

Pneumonia is well treated with quinine, with possibly an arterial sedative, and later, with the mild stimulants and tonics. Diphtheria, from first to last, with tincture of iron, bichloride of mercury, and alcohol.

Many additional details could, of course, be suggested, but this is hardly necessary. If we give the matter thought, I am sure we may have a much more simple, yet efficient, medication for children.

DISCUSSION.

DR. CARR (speaking of the palatableness of drugs).—I think it is well also to consider the vehicle. We may give a drug which in itself is only slightly disagreeable, but make it much more so by giving it in a vehicle distasteful to the patient. To some children peppermint mixtures are so disliked that we cannot get them to take a very simple medicine when flavored with this aromatic. The same is true, in other cases, of winter-green and cinnamon. Very often it is just as well, instead of using these flavors, to give the drug in simple water or glycerin, or something as nearly tasteless as possible, instead of in a heavy syrup which may not be palatable and may cause indigestion.

DR. L. E. HOLT.—It seems to me there is one point in prescribing which cannot be too much insisted upon, that is the use of single drugs instead of compound mixtures. We are not likely to reach accurate knowledge in therapeutics until we use drugs singly. Acting on this idea almost exclusively for the last three or four years, I have been much surprised at the better results, in gastro-intestinal diseases in particular.

DR. SEIBERT.—I would call attention to the desirability of giving drugs by the rectum, when, on account of the disagreeable taste or other reason, it is not well to give them by the mouth. For the last three years I have seen many cases of inflammatory rheumatism in children, and in not one have I given any drug by the mouth, but have always been able to cure the cases with salicylate of soda in watery solution injected into the rectum by means of a small syringe. Within the last year I have engaged in a discussion, I think in Baltimore, with regard to the best way of giving quinine to children. I have since learned, in a consultation with Dr. Jacobi, that it is quite safe and possible to give muriate of quinine in watery solution, one to thirty, injected into the rectum, provided no acid is used in diluting it. Only last week I saw a child with typical intermittent fever; large doses of quinine were well retained in the rectum. Iodide of potassium can be given in the same way, also digitalis, and I have never given antipyrin in any other way to children. We not only thus avoid forcing a disagreeable drug down the child's throat, but also save the stomach.

DR. KOPLIK.—I like to give quinine—which, as we all know, is so disagreeable to some children—by the rectum, as I have learned to do from Dr. Jacobi. I first gave it in this way to adults, at a time when Dr. Jacobi used tartaric acid to dissolve the sulphate. But now I simply dissolve the bisulphate

in water. I have become convinced in dispensary practice that it is one of the most useful methods of administering a disagreeable drug. In fact, it is sometimes the only recourse one has in the intermittent fever of small children.

DR. FRUITNIGHT.—The paper is along the correct line of practice. With regard to the accumulation of bottles, that can be avoided by ordering only a small quantity of a drug, and, if necessary, have it repeated.

SUPPURATIVE PERITONITIS.*

BY JOHN J. REID, M.D.,

New York.

THE following brief report of a rare case of suppurative peritonitis is of interest on account of its rarity and on account of the tolerance shown by the peritoneum to a large accumulation of pus.

A girl, five years of age, came under the observation of Dr. F. A. Thomas, of this city. The symptoms strongly suggested typhoid fever. At the end of the first week tympanites, diarrhoea, and abdominal tenderness were noted. During the second week dulness was found to exist over the lower portion of the abdomen. This gradually increased till, at the end of the fifth week, the abdomen was greatly distended and resembled a case of ascites. There was considerable prostration. I was suddenly sent for at this time, and found that rupture had taken place at the umbilicus, and that pus was flowing very freely from the opening.

I washed the peritoneum out with warm water, and repeated the operation on the following day. A compress was then placed over the abdomen. The child did well, and the washing was not repeated. Within a brief period the child was about as well as usual.

The regret in the case was that there was not an opportunity to see the case as often as could have been wished, but the facts presented show that pus must be considered as a possible cause in peritoneal distention.

* Read by title.

A CASE OF CONGENITAL INFLUENZA.

BY CHARLES W. TOWNSEND, M.D.,

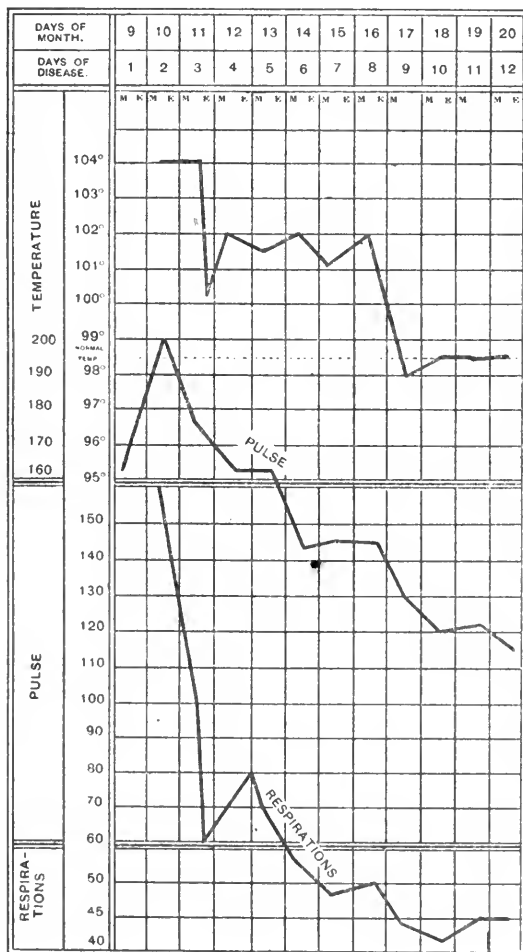
Boston.

MRS. P., a healthy primipara, thirty-one years old, had a mild attack of influenza, beginning January 2, 1890, when the epidemic of that disease was at its height. She was ill for three days, and on January 9, or a week after the beginning of the attack, she gave birth, at full term, after an easy labor, to a boy baby weighing seven and a half pounds. Nothing unusual was noticed about the baby except that its heart-beat—counted *in utero*—was 164,—high for a boy,—and that it sneezed violently soon after birth eight or ten times, although it was wrapped in a shawl. It cried and inflated its lungs well. In the evening the respiration was about 100, and accompanied by a slight expiratory moan. On the second day its temperature was found to be 104° , the pulse at least 200, and the respiration 120 to 160, with an expiratory grunt or moan. The baby was unable to nurse on account of shortness of breath, and was very restless and fretful. Nothing abnormal, however, was to be found on examination of the chest or abdomen.

As will be seen by the chart, the temperature fell to 102° , where it remained from the third to the eighth day, dropping suddenly to normal on the ninth day. After the third day the pulse and respiration improved, and the baby seemed nearly well, with the exception of its elevated temperature. An occasional cough and slight attacks of sneezing daily were the only symptoms. At no time were abnormal signs to be found in the chest. The recovery was complete.

The symptoms and the temperature chart suggest acute lobar pneumonia, and congenital cases of this disease have been reported, the infection coming through the mother. In this case, however, the physical signs of pneumonia were absent, and

we have the history of a preceding attack of influenza in the mother, the disease in the child starting at birth. In other cases falling under my observation where influenza occurred just before labor, the babies were born free from the disease.



In the *British Medical Journal* for March 1, 1890, page 477, a somewhat similar case is reported by J. Kingston Barton, where the attack of influenza began in the mother four days before delivery. The infant died on the third day, having

had a high temperature, rapid respiration, pulmonary catarrh, and an erythematous eruption on the skin.

DISCUSSION.

THE PRESIDENT.—The youngest patient which undoubtedly had epidemic influenza, which came under my observation, was four months old.

DR. BLACKADER.—I have had no case of congenital influenza. I have had one case of congenital pneumonia, the child dying before the seventh day was hardly completed. At my request, Dr. Osler, who was in Montreal, performed the post-mortem. I had thought of cardiac disease,—some anomaly of the heart-valves,—but a small patch of pneumonia was found at the right apex. It would have been almost impossible to verify it by percussion. The patch was very limited, but was distinct, and we thought it was the cause of death. I mention it only to show how small a patch of pneumonia will at times prove fatal.

DR. NORTHRUP.—I regret exceedingly I could not hear the paper. For that reason my remarks may not be altogether in place. It may be of interest to say that at the New York Foundling Asylum there was not a case of recognized influenza in a child under two years during the epidemic. It has seemed to me that the extremes of life escaped. In children five to six years old at the Foundling Asylum, from fifteen to twenty per cent. were affected, while among young healthy adults, servants, etc., something like eighty per cent. were affected. I saw one case in private practice which I thought might be influenza, in a child ten months old, but it was very doubtful, although there was influenza through the household.

DR. FRUITNIGHT.—Cases of congenital influenza must be very rare. I have never seen any. The youngest patient I have observed with it was six weeks old. The diagnosis was positive, because all the adults and the three other children of the family, from three to eight years old, had it. This infant had characteristic symptoms, coryza, conjunctivitis, cough, fever. I certainly would not have considered it a case of the disease if it alone had been affected; but because all the remaining members of the family suffered simultaneously from influenza I think I am justified in considering the infant as also affected by the disease.

DR. HOLT.—The facts referred to by Dr. Northrup have been borne out in my experience both in private and in hospital practice; as a rule young infants were quite exempt. I saw one positive case in a child nine months old.

Dr. Scharlau said he had not seen influenza among very young infants.

DR. DORNING.—Taking the negative side of the question: During the epidemic I had twenty obstetric cases, and in six of these the mothers suffered from influenza; in one case delivery was induced at the eighth month,—I think by the excessive coughing. In no case, however, was I able to diagnose epidemic influenza in the infant.

THE PRESIDENT.—It might be a question as to the diagnosis in these cases where young babies were supposed to have the disease. I would say that in the case I alluded to, in a child four months old, the mother had the influenza at the time; was lying in bed, the baby at her side; the father had it, and other members of the family had it. This child was taken with coryza, sneezing, temperature 104° F. at first, and symptoms almost identical with those of the mother, and they passed off in due time, as did the symptoms of the mother. Therefore, I do not doubt that the disease does occur in babies of that age.

DR. TOWNSEND.—I opened the paper by asking the Society as to the diagnosis. As I said, in private practice and in the babies in the lying-in hospital, where there were a good many mothers suffering from influenza, none of the babies had influenza, nor anything which looked like it. But in the case related, I could not see what else it could be. There are a few cases recorded of nearly every infectious disease where the infant has been born with the disease, the mother suffering at the same time. I should like to ask the Society what the diagnosis was in my case, supposing it was not influenza.

DR. NORTHRUP.—My own opinion is that we should be very sceptical of a diagnosis of influenza in children under two years. My opinion is founded not only on personal observation, but upon the statement of others under whose care there are a great many children. I would ask Dr. Jacobi, who has just entered the hall, whether he has seen influenza in children under two years, and if his answer is in the affirmative, whether he has seen it under one year.

DR. A. JACOBI.—I feel sure that I have seen cases under two years; that is, cases where the diagnosis of influenza had been made. I do not remember at this moment whether I have seen a case under one year. The younger the children have been, the less influenza have we seen in this city. That is at least my impression, and appears to be the impression of those who have had opportunity to see more cases than I. I have seen relatively fewer cases of influenza, because they are not so apt to become the object of professional consultations.

Clinical Memoranda.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, November 13, 1890.

J. HENRY FRUITNIGHT, M.D., afterwards L. EMMETT HOLT, M.D., *in the Chair*; WALTER LESTER CARR, M.D., *Secretary*.

A NOTE ON HOW TO OBTAIN THE BEST PRACTICAL RESULTS FROM THE MILK STERILIZER.

Dr. Walter Mendelsohn gave as a reason for reading a note on this subject the fact of frequent failure on the part of the laity and even of physicians to obtain the best results from milk sterilization. The fault was, he thought, in want of sufficiently definite instructions how to carry out the method, and especially in failure to thoroughly understand the underlying theory. It was not only necessary to show the mother or nurse how to sterilize the milk-food of the infant, but also to have her fully comprehend why it should be thoroughly sterilized, in order that she might omit none of the details.

Having explained that the object is to so prepare the food that it shall be free from obnoxious germs, establish the best system for carrying this out daily. Let the milk be prepared early in the morning, taking a sufficient quantity to last the twenty-four hours. Let it be taken from a pitcher which has previously undergone a thorough cleansing, for in all the steps thorough cleanliness must be insisted upon. The bottles must be without a shoulder and flat-bottomed. They should be placed upon something wooden, to cool gradually. They should be of such size that, when filled with the desired quantity, there will be at least two inches space from the surface of the milk to the lower end of the stopper, and should not be shaken and the stopper be allowed to get wet. If by chance the milk should get sour in the bottles, these should be

boiled in soda and set aside for some time in borax-water. When empty, the bottles should be rinsed at once, and stand with borax-water until ready for thorough cleansing. Pyle's pearline, used with hot water, gave the best results in cleansing the bottles. In filling, use a funnel, so that the bottle shall be kept dry outside and in the neck. Never use the same bottle of milk for more than one feeding; this should be made a cardinal rule. Use a cotton wad for a stopper, and have no milk about the neck of the bottle when it is put in; do not shake the bottle and thus get the stopper wet. The rubber stopper was to be used only on voyages. As to the nipple, it should be one that can be turned and thus thoroughly cleansed. It should be kept in borax-water.

The sterilizer might consist of an ordinary cooking-boiler; but since the method has to be long continued, it would prove more economical as to labor and cost to purchase a special apparatus. The best was Arnold's steam sterilizer. If one put in sufficient water, the bottles could be kept in this at a temperature of 212° an indefinite length of time without danger. It could be used with a gas, oil, or alcohol stove when the range contained no fire. Keep the milk in the sterilizer an hour, for while it can be understerilized it cannot be oversterilized. After being sterilized, place the bottles in a shady place out of the way, but not in the refrigerator.

When desired to keep the milk for a long voyage, sterilize it three times to make sure, allowing an interval between the sterilizing processes of two or three hours. Employ in this case rubber stoppers. When going out for a day's trip, one could stand the bottles in a receptacle and throw the strap over the shoulder.

THE USE OF STERILIZED MILK IN DISPENSARY PRACTICE.

Dr. Henry Koplik gave a *résumé* of the use of sterilized milk among the very poor and the ignorant met with in dispensary practice. At an expense of ten cents they had given mothers coming to the dispensary seven bottles, each containing three ounces of sterilized milk. Some were given to the very poor without cost. Seven thousand bottles were thus distributed during the summer, some receiving it a few days, some for weeks. The age of the babes had varied from seven weeks to thirteen months. When cured or improved, the patients were instructed how to continue preparing the sterilized milk, but were not trusted with this work until shown by the improved condition of the child that it was of some use.

The cases in which this treatment was applied were mostly those of acute or chronic entero-colitis existing alone or in connection with other diseases, as typhoid fever, pneumonia, etc. In other cases there was gastritis, with or without dilatation of the stomach. Washing the stomach was employed to a certain extent. In many instances the improvement or cure was rapid, the vomiting and diarrhœa ceasing in some acute cases within twenty-four hours. In others the improvement was gradual. Then there were some cases, both acute and chronic, which failed to improve at all. In some constipation followed the diarrhœa after changing to sterilized milk, and required attention. He did not dilute the milk until it was about to be used. As to apparatus, a potato-pot would answer the purpose, having one boiler set inside the other, the water being in one, the bottles standing in the other, or a boiler with water on the bottom and the bottles standing above in a wire framework like a castor.

Dr. Hutchins, of Brooklyn, said that the difficulty in the use of sterilized milk which physicians had met with in this city was to get the parents to sterilize it properly. For that reason he had made efforts to induce some reliable milk company to sterilize the milk before bringing it to the city, and deliver it in sealed bottles. After two years his efforts had been successful; a firm now supplied sterilized milk for ten cents a quart, and sterilized cream mixture, which was of twice the strength, for ten cents a pint. He had kept it two weeks and longer without finding it sour.

PERITONITIS IN INFANCY AND CHILDHOOD.

Dr. J. Lewis Smith, the author, said that, owing to the lateness of the hour and the length of the paper, he would omit certain portions. No age, he said, was exempt from peritonitis. The disease might exist even in the fœtus, as had been shown by the presence of thickenings, adhesions, and bands found at autopsy. Although syphilis was the common cause, it would appear that other causes were also operative. An interesting form of peritonitis was that seen in the newly born, produced by uncleanness in dressing the cord, etc. It was of microbic origin, it might take place from tumors of other organs. Septic infection occasionally caused peritonitis when the conditions were favorable in older children. Chronic degenerative disease of the kidneys was less commonly the cause in children than in adults. Peritonitis sometimes accompanied scarlet fever and small-pox. Judging by his own observation, the author was disposed to think it sometimes

originated in "taking cold." It could also arise from disease, especially inflammatory disease, of any of the abdominal viscera. In infancy and childhood it more frequently arose from disease of the hollow organs than from disease of the solid viscera. Intussusception, attended by bloody stools, tenesmus, vomiting, and abdominal tenderness, was more common in infancy after the age of six months than in any other period of life.

Another not infrequent cause was appendicitis due to the lodgement of some foreign substance or a concretion within the appendix. Children should be warned of the danger of swallowing the seeds of grapes, etc. Peritonitis also sometimes arose from rupture of the intestine during typhoid fever. A case was briefly related illustrating peritonitis the result of traumatism. Froelich had recorded a case in which tonsillitis was attended by peritonitis, and expressed the belief that the micro-organism which caused the former disease was also the cause of the latter. There were instances in which sewer-gas poison seemed to have given rise to peritonitis.

Tubercular peritonitis occurred much more frequently in infancy than in adult life.

The diagnosis was not difficult in ordinary cases. Sometimes, however, the symptoms which were usually characteristic were not present. It was distinguished from enteritis and entero-colitis by greater tenderness, pain, constipation, meteorism, retraction of the abdominal walls, and severer type of the disease; from acute indigestion by pain on pressure, etc. It was distinguished from rheumatism of the abdominal walls by the flexed position of the thighs, and the influence of salicylate of sodium in the latter. Hyperæsthesia of the abdominal walls was common in commencing febrile diseases in childhood, and pain on pressure resembled that of peritonitis, but it diminished instead of increased on continued pressure; besides, there was the same pain on pressure over the chest and inner surface of the thighs. If liquid was present in the peritoneum it could be determined by palpation, percussion, and position. He had never observed friction sound in the peritonitis of childhood, as he had sometimes in the adult.

The cause of the trouble should, if possible, be made out. Heretofore less attention had been given prophylaxis than should have been. Even in foetal life it might be prevented if parents, warned of its existence in one instance, subsequently submitted to mixed treatment to remove the syphilitic taint from their own systems. Septic peritonitis might usually

be prevented by cleanliness. The disease attending scarlet fever or other infectious diseases might be prevented in some degree by the use of germicide vapors in the patient's room. It was only in the advanced cases of intussusception, unrelieved by treatment, that peritonitis occurred. From the sixth month to the second year, when intussusception was most frequent, the child should not be handled and tossed roughly. If indigestible substances were avoided, appendicitis would not be excited. The swallowing of grape-seeds in particular was condemned.

Early and judicious treatment was very important. Many lives were lost because the physician was not summoned early. The indications were to subdue the inflammation as soon as possible, and to employ medicinal and dietetic remedies which would sustain the strength and prevent heart-failure, which was the common cause of death. Give such food as was most easily digested and which formed the least amount of fæcal matter. The patient should be kept quiet in bed, and the least amount of movement permitted. The most comfortable position was the dorsal, with the thighs flexed. Purgatives acted injuriously in the ordinary forms, tending to increase the inflammation. They should not be given by the mouth, even if one, two, or even three weeks passed without a stool. A clyster of soap and water, or glycerin and water, might be allowed. After twelve or fourteen days, fæcal evacuations were likely to take place without any assistance. He quoted Flint, who deprecated the too early use of laxatives in convalescence, and during the inflammation employed opium. Little other treatment would be required in ordinarily favorable cases. But when the heart began to fail, cardiac tonics would be called for. It was evident that the cause should be removed if possible.

The propriety of performing laparotomy in peritonitis caused by intussusception or appendicitis required careful consideration. If in intussusception laparotomy were deferred until peritonitis developed and there was considerable tympanites, it would probably hasten death. The surgeons in New York had cured a considerable proportion of cases arising from appendicitis by operation, yet in Germany statistics spoke favorably for the opium treatment, applying leeches, and perhaps the ice-bag. As to the advantage of opening the abdomen and washing out pus in purulent peritonitis, we had also to look to the surgeon for advice.

Formerly it was the custom always to apply hot poultices over the abdomen in peritonitis. In low states of the vital system probably they would yet be considered better than

cold, but as a rule in the acute stage in those whose health had previously been good, cold would give greater relief. In the advanced stage of the disease, when collapse was coming on, ice should be left off, and perhaps warm applications be made.

The chairman remarked, before inviting discussion, that the author had taken strong ground with regard to seeds as a cause of appendicitis. Yet at a meeting of the Pathological Society, when gentlemen were present whose collective experience represented a great many autopsies, not one of them could recall a case in which he had found a seed in the vermiform appendix. Several said they had found what on gross appearance seemed to be seeds, but careful examination showed almost always simply intestinal concretions. Was it not a little hard, then, to forbid children swallowing the seeds of fruits on penalty of having appendicitis?

Dr. Joseph E. Winters, speaking of the etiological diagnosis, said it seemed to him the causes of peritonitis in children might be ranged in about the following order: 1. Typhlitis, perityphlitis, and appendicitis. 2. Traumatism. 3. Tubercular disease. 4. Intussusception.

In the first, the diagnosis could usually be made from the local symptoms. In traumatic peritonitis it was more difficult, because most children were unwilling to acknowledge what led up to the traumatism; in dispensary practice it was often the brutal treatment of parents. Tubercular peritonitis was likely to give a family history or general signs of the disease. In intussusception the symptoms were sufficiently pronounced.

In peritonitis from typhlitis most men now employed cold. We had to do with an acute process which was sufficiently superficial to be influenced by cold applications. The speaker at one time thought cold would not be advisable, but now employed it nearly always at the outset, and obtained very satisfactory results. Occasionally it was so unpleasant to a patient that it had to be abandoned for heat. If cold did not relieve pain, morphine must be used. He removed all foreign substance from the large intestine, and if he could not succeed in doing this by frequently repeated small doses of calomel, he gave injections, preferring cold to hot water. Ice-cold water injected into the rectum tended to subdue the inflammation.

In traumatic peritonitis cold applications and clearing out the alimentary canal usually proved sufficient, adding, of course, as in all cases of peritonitis, strict dietetic management.

In tubercular peritonitis, relieve pain and apply, if one wished, iodine. After meeting the indications, if the symptoms still persisted, and there was hectic and tendency to relapse,

giving reason to believe that there was suppuration, operative interference was demanded. In appendicitis, as soon as the diagnosis had been made, and one had failed after employing judicious means to relieve the symptoms, laparotomy should be resorted to. The operation was much simpler at the outset than after extensive cellular infiltration had taken place.

The author of the paper said with regard to seeds being the cause of appendicitis, that he had not witnessed many post-mortem examinations in these cases, but he remembered that in one instance the substance found was a hard bean which had been swallowed. He thought that if the surgeons who spoke of finding concretions were to make careful examination of them they would discover in a considerable proportion a seed in the interior. It was a question which he meant to investigate further. He was not ready to take back his statement with regard to the danger of swallowing grape-seeds.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, December 4, 1890.

ALFRED L. LOOMIS, M.D., *President*, in the chair.

AFTER the Academy had transacted other business, the scientific paper of the evening was read by Dr. William T. Lusk, entitled

LIFE-SAVING METHODS IN STILL-BIRTHS.

The author opened the paper with the narration of a case. A few weeks ago he had been called to the bedside of a primipara in labor. The child's head was low in the pelvis, but for two hours there had been no progress. Extraction of the head by the forceps was easily accomplished, but the cord was found tight around the neck. It was divided by the scissors, and the body was extracted. The child, however, had become asphyxiated, respiration had ceased, the heart-beat was scarcely perceptible. He placed the child upon a table, wrapped in warm cloths, expelled the mucus from the posterior fauces, passed a No. 8 English catheter into the trachea, and removed mucus by suction. The quantity of mucus in the bronchial tubes was large, and the catheter had to be introduced many times. Direct inflation was then practised,

and in ten minutes slight heart-movements were observed, but these ceased again, and life-saving methods had to be continued for nearly three hours before respiratory movements were finally established. These methods consisted in removal of mucus from the bronchi, inflation through the catheter, warm-water baths with sprinkling of the epigastrium with cold water, and the use of Schultze's and Sylvester's methods alternately. Before using Sylvester's method it had been necessary to draw the tongue forward and depress the base. The next day the child had spasms, but recovered after twenty-four hours, and remains to-day robust and the joy of a family.

He would grant that the story was a familiar one, but its importance led him to bring the subject before the Academy on this occasion. According to his observation, the method usually pursued was to spank the child, wrap it in warm cloths, or dip it alternately in warm and cold water, and lay it away to die. But to manage these cases successfully required perseverance and a knowledge of the physiological laws involved.

It was known that during the period of gestation the child remained in a state of apnœa; that the respiratory function was performed by the placenta. But as soon as the child was born, in normal cases, the thorax expanded, the diaphragm contracted, pulmonary respiration was established. The premature establishing of pulmonary respiration while the child was still in the passages was followed by asphyxia, and was generally the cause of still-births. The author here mentioned the two prevailing theories regarding the cause of respiration taking place at birth, and also cited the experiments of Engstok made on guinea-pigs and other animals, which demonstrated that foetal respirations were excited in the absence of external sources of irritation so soon as the blood in the umbilical veins became darkened or was cut off from the foetus. Peripheral stimuli, however, were capable of exciting the respiratory act before the internal stimuli had increased sufficiently to induce independent action.

After describing the foetal circulation, Dr. Lusk said that, owing to the less amount of blood supplied through the placenta during contractions of the uterus before birth, the respiratory centre in the medulla received less arterialized blood, became more irritable, and this, with the friction upon the body of the child as it passed through the genital tract and came in contact with the air, caused the first respiratory act to take place. This was accompanied by expansion of the chest, opening up of the pulmonary air-cells and of the blood-

channels distributed to the lungs, which before had been nearly closed. The blood, therefore, which had before passed from the right ventricle directly to the aorta, was now directed to to the lungs. This caused diminution in blood-pressure in all the vessels of the body, the pressure being partially compensated for by aspiration in the vena cava with the acts of respiration. Since the blood, after respiration had set in, was most diminished in the ductus arteriosus, this channel soon became obliterated. In the regular channels the diminished pressure was most marked at a distance from the heart. It was particularly noticeable in the umbilical arteries, the pulsation here often being scarcely perceptible after the child had breathed a few times.

In cases of asphyxia it was somewhat different. In nearly all cases of asphyxia after birth the child had breathed in utero. Intra-uterine respiration was due to tetanic contractions of the uterus, a condition oftener seen when it was more common to give ergot before birth of the child; to premature death of the mother; but oftenest of all, to pressure upon the cord. Cutting off of the blood suddenly from the placenta caused a backward coupe and increased arterial tension, together with an increased amount of work thrown upon the right side of the heart. Intra-uterine respiration taking place, the lung expanded, amniotic fluid, meconium, epithelium, and mucus entered the nose and throat, and, if the efforts at inspiration had been active, even reached the trachea and bronchi. As the respiratory attempt went on, but no oxygen reached the medulla, it gradually lost its irritability, respiration ceased, and the heart and vessels were left engorged with blood. Ecchymoses, if not hemorrhages, were seen in different parts at autopsy. The time during which the asphyxia had existed, or its degree, differed in different cases. In the milder ones the muscular tone was preserved, the head did not drop, the skin was of dusky red or cyanotic, the conjunctivæ were congested, the umbilical vessels distended, reflex movements could be excited by irritation. In these cases respiration often returned. But in the more advanced state of asphyxia the surface was pale, cold, the heart-beat was feeble and infrequent, the umbilical vessels were nearly empty, the head dropped, there was loss of muscular tone; if there was any attempt at respiration there were no associated movements of the muscles of the face.

The first signs of returning animation were the refilling of the capillaries and of muscular tonicity.

The indications for treatment were to clear out the air-passages, restore the irritability of the medulla, increase the force

of the heart-contractions, relieve the plethora of the heart and blood-channels, expand the thorax. Where muscular tonicity was still present these conditions were easily fulfilled; and clearing out the fauces and nose of mucus, the use of flagellations and the stimulus of warm and cold water were likely to prove sufficient. But in a number of instances the skin in a few days became dusky, the heart-action feeble, and the child died of atelectasis. To avoid this no method excelled Schultze's.

Schultze's method was illustrated on the child cadaver. The thumbs were placed upon the anterior portion of the child's head, the index-finger in the armpits, the hands diagonally over the back, the body hanging down. The mouth being open, the pulling upward on the thoracic muscles drew the upper ribs upward, while the attachment of the abdominal muscles caused the lower ribs to be drawn downward, the diaphragm fell downward, and thus the cavity of the chest was expanded to the greatest possible degree. Inspiration was thus induced. Now, by extending the hands horizontally and giving the body of the child a forward turn, the position was assumed in which the abdominal viscera pushed up the diaphragm, the ribs were brought in close contact with each other, and the most efficient form of expiration was carried out. Perhaps there was no other way in which the mucosities taken up into the lungs could be so efficiently expelled. Before laying the child aside it was desirable to swing it gently a few times forward and upward over the hands so as to completely ventilate the lungs and expel the mucus from the air-passages. But the greatest advantage of the Schultze method related to the manner in which the congested heart-cavities, thorax, and blood-vessels were unloaded of engorged blood. There was no doubt but what the Schultze method would save many of that class of cases which heretofore had been resuscitated only to die the third or fourth day.

But the method was capable of abuse. Before it was employed, the child should be placed in warm cloths, and its nose and fauces cleared of mucus. Then proceed to clear the trachea and bronchi by passing a No. 8 English catheter and using suction. This often required time and repeated introduction of the elastic tube. Meanwhile, insufflations should be employed at intervals. Gentle compression of the chest-wall should now and then be practised. By these means, little by little, the blood received oxygen, and returning irritability of the medulla was manifested by occasional movements. Then Sylvester's method was practised. It was not of much use, however, unless one had an assistant to hold the extremi-

ties. The tongue should be drawn forward and its base depressed, to permit entrance of air. As soon as the heart-movements became plainly perceptible the child should be placed in warm water, lifted again, and sprinkled with cold water. But to dip it suddenly in cold water had often caused instantaneous death. Putting it into warm water and sprinkling the face with cold water was harmless. Finally, the swinging method of Schultze should be employed, especially for its effects upon the circulation. It should be remembered that cases of asphyxia required watchfulness and a hopeful spirit. Even after having presumably resuscitated the child by the procedure just outlined, it might again be necessary to go back to the catheter and insufflation.

Dr. William M. Polk opened the discussion. The author, he thought, had about completely covered the ground. He thought with him that the distinction was not often enough made that different degrees of asphyxia called for different kinds of treatment. This oversight led to the loss of many lives. Speaking for himself, he always proceeded in cases of asphyxia of the second degree to the use of the catheter. In such cases the child was nearly always practically drowned by breathing while in the uterus or vagina. But whether this was the cause of the asphyxia, or whether it was compression of the brain, he began with the use of the catheter. Further than this, he had seldom found it necessary to do more than resort to Schultze's method for restoring the circulation. Time and again had he been able by these procedures to bring children to life which at first offered very little hope. In fact, in one case of cerebral compression, the Tarnier forceps having been used, he was able for over an hour and a half to bring back arterial color to the skin and see it depart again on ceasing to use insufflation by means of the catheter. He added that the injury to the brain was such that it was not desirable to save life in this case.

Dr. H. J. Garrigues thought with Dr. Lusk that it was important to have impressed upon the mind of obstetricians the need of keeping up hope. We ought in all cases to have the conviction that we could save the child if the heart beat. Cases were on record in which the accoucher had saved the child even after the heart had ceased to be felt. In such cases it sometimes required hours before respiration began. He had himself had one case in which it was two hours and a half after birth before the first respiratory effort was made. This child, however, lived only seven hours. But to live at all was of importance from a medico-legal stand-point. He had found Schultze's method of great value. He thought it a good

substitute for Sylvester's. As to blowing into the mouth in order to get air into the lungs, he thought it simply resulted in distending the stomach.

The author had not referred to one form of surface irritation or stimulation which Dr. Garrigues considered of value,—namely, faradic electricity. Its action, he thought, was simply that of a surface stimulant or irritant. He did not approve of placing one pole over the neck with the idea of stimulating the nerve going to the diaphragm. In his opinion, we could not thus influence the diaphragm. And if it were possible, the current would be likely also to arrest the heart through its influence upon the pneumogastric. Where the child was white and limp, he resorted at once to the use of the gum-elastic catheter. After clearing the passage of mucus, he inflated the lungs with air, which seemed the most powerful of all methods.

Dr. R. A. Murray said that when the foetus was blue and animation suspended at birth, he made it a rule on detaching the cord to let some blood escape. No other method was more effectual in relieving congestion of the heart and in enabling the circulation to be more easily established. If the asphyxia were of the second stage he proceeded at once, after clearing the passages, to insufflation with the catheter. He thought physicians often erred in not sufficiently clearing the air-passages of mucus, etc.; second, in making too deep insufflation, forgetting that the infant's lungs were not as big as their own; third, in going through the respiratory acts too frequently (twenty to the minute was often enough). Dr. Murray also applied a stimulant to the rectum, a part which was known to be the last to show signs of anæsthesia when an anæsthetic was being administered, and the first to come from under the influence. A little brandy might be introduced as an enema,—not enough to do harm, should it become absorbed. He also cautioned against keeping the infant in cold water too long following the warm bath, else it would be killed.

Dr. W. E. Forrest thought an objection to the Sylvester and the Schultze methods was that the infant was exposed too long to the air. It was of utmost importance to preserve the vital heat, especially when hours might be required to restore life. He therefore kept the infant in a warm bath of from 100° to 110° F., placed his right hand on its back, allowing the head to fall between the thumb and finger, and with the left hand raised the arms, while the weight of the body drew down the ribs and diaphragm. If desired, the physician could now bend forward and breathe into the mouth. With the head in this position the œsophagus was closed by pressure of the

cervical vertebræ and the passages to the lungs kept open, so that the air entered only where it was desired. The expiratory act could then be gone through with. The advantage consisted in retaining the vital heat by a constant bath of 100° to 110° F.

Dr. A. Jacobi said that, Dr. Polk having alluded to a case in which it was a question whether it was worth while to try to save life at all, he was prompted to make some remarks on the necessity of immediate treatment in cases of asphyxia of the newly born.

A child's future depended largely upon the condition of its brain. There was no organ in the baby's body which was so much exposed in asphyxia as was its brain. The blood-vessels were very thin; they were scarcely formed, so to speak. Therefore hemorrhages took place very readily. Moreover, the blood of the child contained very little fibrin, and when hemorrhage did occur it was likely to be considerable in amount. If the babies would die when cerebral hemorrhages occurred, they might be better off, for when they lived they were likely to have meningitis, encephalitis, epilepsy, idiocy. He believed that a large proportion of the cases of idiocy and epilepsy in well-to-do families had their origin in asphyxia in the newly born. What, then, did the physician owe the baby? It was his duty, if he found it asphyxiated at birth, to give it his immediate attention, leaving the mother to the nurse for the time being. The shorter the duration of the asphyxia the less likely sad after-effects.

Dr. J. H. Dew said he had for fifteen years practised a method somewhat different from that of Schultze's. Taking the infant into the hand, he held the neck between the thumb and forefinger of the left hand, allowing the head to rest over the body, the shoulders in the palm of the hand. Then seizing the legs with the other hand, he practised a forward and backward movement in keeping with the normal rate of inspiration and expiration. It was a very successful and easy method of inflating the lungs and expelling mucus and air from them.

Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

Treatment of Digestive Troubles in Infants—Use of Alcohol in Infantile Diarrhœa of Malarial Origin—The Depopulation of France—Treatment of Scarlatina by Acetate of Ammonia in Large Doses—Treatment of Small-pox by Sulphur—On the Alteration of the Pancreatic Digestion in Infants.

Treatment of digestive troubles in infants.—This subject is not at all new, but is so important that we will give a short account of the latest ideas of the French doctors in regard to it. M. Le Gendre has a good article on the question, that we take extracts from. The diagnosis of the immense number of cases of digestive trouble in infants is given as *gastro-enteritis*, *infantile cholera*, *athrepsia*, etc. As to the etiology, the most important cause is want of care in alimentation, and the reign of the bottle is by no means over in France, notwithstanding the crusade made by the doctors in favor of maternal alimentation, or at least employment of a wet-nurse. The most eloquent writers have not succeeded in persuading the mothers, and they rarely or never nurse their children. The husbands are also at fault by what the writers here call "*genital egotism*," and they are accomplices of the wordly vanity of their wives. The doctors are also at fault, as they are too willing to admit with the wife's mother and husband that she is much "too delicate" to nurse the baby. Then comes the question of maternal jealousy, by which the mother does not wish to employ a wet-nurse, but prefers a dry-nurse to give the child the bottled cow's milk. The curious "female logic" of this is absurd, for the baby will love the nurse that gives it the bottle just as well as the one who would give it the breast. The next most important cause of the digestive troubles of infants is the false therapeutic ideas that many doctors have in regard to treatment of such troubles. It is all very well for them when called to treat stomach or intestinal troubles in adults, because no matter what they do the patients rarely die, and as they mostly have sense enough to feel the excessive fermentation going on, they of themselves naturally put themselves on low diet, and being thirsty they drink water and other

cooling drinks, but the poor baby cannot say he is thirsty and drinks everything it can get, which is mostly milk, and it is really a solid aliment that coagulates in the stomach and needs a digestive power that the organs cannot give it in the temporary incapacitated state they are in. The doctor then comes with his drugs, and still the child continues to vomit and have diarrhoea, fermentation goes on, and intoxication of the system follows, of the putrefied matters, then follows anuria, hypothermia, cramps, convulsions, coma, and death. The great error is to believe that drugs will cure the trouble without first taking the alimentation into account. The very same doctor who makes these errors will cure a child of five or six, as he will regulate its diet, but does not think of doing so for the infant, or is afraid to do so, yet the first and most important indication is to *suspend or diminish the alimentation by milk*. The reason is, that the milk is of a bad quality, or too much of it is given, or the bottle or nurse's nipple is not clean. The researches of Damaschino and Hayem have shown that there is a special microbe that is found in green diarrhoea of infants which may be modified by giving lactic acid, but we do not know if it lives in the intestines as a harmless parasite which becomes pathogenic at certain times, or if it is introduced from the outside, but, besides this element of danger, how many others are there that are not known that cause gastric troubles, such as are seen during dentition, for instance. There must be several elements in the etiology, such as nerve perturbation in a baby teething, causing reflex actions elsewhere, then cold and heat, acidity of the milk, and a thousand other reasons.

If the prescriptions of the men who attend children are compared it will be seen that they give alkalies, astringents, and opiates. Others again will give only antiseptics, but few see that the key of the situation is to regulate the diet. Take an example: a baby commences to vomit, and it is seen to have some undigested milk in the fæces, it cries and is thirsty though. The indication is to *diminish the alimentation*, give less milk, weaker and at longer periods, and also give a little Vichy water (or bicarbonated water) to stop the thirst and keep up the urinary function. Later, when the diarrhoea may be considerable, it is very important to give a bicarbonated water; if one is called still later in these cases, when the green diarrhoea is fetid, abundant, and the belly is swollen and distended, and the mouth dry, the intoxication is manifest then, and the whole digestive tract is poisoned, so the first thing to do is to *suppress alimentation* and to suspend for the moment all introduction of fermentable matter into the stomach, then use calomel

to clean out the digestive tube of its formed poisons, and here is the place for the antiseptics,—resorcin, sodii benzoate, sodii salicylate, bismuth salicylate, naphthol, etc. The last being best given in a gummy liquid, give Vichy water to drink, and a little good brandy can be added, and only after several hours should alimentation by milk be recommenced. If one is called still later, when there is fever, flat belly, no urination, or very little, convulsions and coma, then no purgation or antiseptics are of use, we must then use stimulants to the nervous system, hypodermic injections of ether, camphor, or caffeine, mustard baths, or wine baths, while friction is used to the skin, and by the mouth, every quarter of an hour, give a teaspoonful of sherry, port, or champagne which has been mixed with one-half water. Rectal injections of meat extracts or wine may be tried also, and indeed they should be relied upon for some hours afterwards before returning to milk alimentation by the mouth. Even when the milk is used it would be well, in serious cases, to give also every half-hour, before nursing, a rectal injection of thirty to fifty grammes of meat (soup) containing ten grammes of dextrin. If the digestion continues to be laborious the following potion may be used:

R Pepsin, 1 gramme;
 Acid hydrochl., 50 centigrammes;
 Sugar, 10 grammes;
 Aqua destill., 120 grammes. M.

Sig.—Give a teaspoonful after nursing.

On the uses of salol in infantile diarrhœa of malarial origin.
 —Professor Moncorvo, of Rio de Janeiro, gives a number of cases in which he had great success with salol, and he thinks that the abnormal fermentation causing the diarrhœa was, owing to a general infection of the organism, by malaria. This would be of interest in certain sections of the United States, and we give a short *résumé* of the professor's cases. He gave salol in forty cases of what he calls diarrhœa *maremmatique*, and it was constantly successful. The dose used was from thirty to fifty and up to ninety centigrammes per day. In some children one gramme per day was used, while hydrochlorate of quinine was also given. The salol was always well tolerated.

Dr. Moncorvo speaks of Goelet's trials and Carr's cases, published in ARCHIVES OF PEDIATRICS, 1889, and also Carr's ideas on the subject, but he thinks that malarial infection shows itself very often by intestinal troubles in children, and it presents such a form of gravity in their cases that he considers it of importance as regards prompt treatment, and salol seems to meet the indication.

The depopulation of France.—Professor L. Le Fort, of the Paris Faculty, claims to have been the first to have discovered the fact that France is being depopulated, and he wrote of it in speaking of the suppression of the old-time *tours*, or turnstiles, in which the mothers left their babies to the tender mercies of the Maternity Hospital. Dr. Le Fort now shows that it is not by excess of mortality that the country is falling off in births, but by a diminution of natality. This has been progressive since 1821, when the births were 1 to 32 inhabitants, until 1889, when it was 1 to 42, so that France is now last among the nations of Europe, at least in this respect, having only 25.8 births per thousand inhabitants, while Germany has 39.6, Austria 39.9, Italy 37.1, and Hungary has as many as 42.8 per thousand.

The causes of this decrease in France are various. First of all, marriage is rare in France, and when it does take place, it is later in life than in other countries. The mean age for men is twenty-nine to thirty, and for women twenty-four to twenty-six. Enforced military service has also something to do with the decrease of births, and the custom of not marrying until the parties have a competence, or at least the girl has a *dot* or marriage portion of some kind in clothes, house, or money, and the man a trade or profession, is an important factor. Perhaps the most important fact is, however, the infecundity of marriages in France. They rarely have more than one or two children, 1.08 is the average. This limitation of the family is most often produced by prevention of conception, usually by the "sponge and string method" or some other means, but it is believed that this limitation has gone on so long now that the French women cannot have a large family if they wish to. Illegitimate children are a considerable item in what births do take place, and in this connection we give a translation to the weekly statistical paper sent to all doctors here. Taking last week as a specimen, "During the week just past 895 living children were registered in Paris (442 boys and 453 girls), 659 were legitimate and 236 were illegitimate (some 10 of this number were recognized by their fathers). Besides the above number, 86 babies were registered as "born dead." 289 of these infants were put out to nurse, and 89 of them to wet-nurses, the other 200 to *dry-nurses*, who raise them by "*other means*," which means the bottle, and shows a continuance of the baby-farming that exists in France. This is partly owing to the fact that the mothers of Paris will not or cannot raise their children in the small *appartement* houses of this city, and they send their babies out to the country farms to be brought up.

Treatment of scarlatina by acetate of ammonia in large doses.—Dr. Vidal reported lately to the Academy of Medicine that he had great success with the above treatment. He found that one-gramme doses, per year of age, was well tolerated both in children and adults, but he never gave over thirty-five grammes a day to adults. He thinks that in high doses acetate of ammonia will cause the temperature to fall rapidly in scarlatina, and perhaps it will do the same in the other eruptive fevers. The action of the drug seems to be better accordingly as it is given at first or later in the disease.

Treatment of small-pox by sulphur.—Dr. Iscar gives sulphur in such cases, and claims much success. He thinks that it is eliminated by the skin, which accounts for its good effects. He gives the following formula for children :

R Sulphur (sublimated and washed), 10 grammes ;
Glycerin,
Orange-flower water, āā 60 grammes ;
Syrup (simple), 30 grammes. M.
Sig.—Give a teaspoonful every hour.

On the alteration of the pancreatic digestion in infants.—Dr. Gillet thinks that this question is not sufficiently studied, and that it may give some indications for the digestive troubles of infants. He made a number of artificial digestions with the pancreatic juice taken from infants soon after death, with the result of confirming the fact that there is almost an entire absence of starch digestion during the first months of life. Besides, it would seem as though the pancreas lost its functions in enteritis, and yet it retains it in other grave affections when the intestinal tract is not affected by the malady. If these points are confirmed, certain clinical and therapeutical indications will follow.

Clinical Lectures.

LECTURE DELIVERED AT THE JEFFERSON MEDICAL COLLEGE HOSPITAL.

BY OLIVER P. REX, M.D.

GENTLEMEN :—The first case that I shall show you has the following history :

This child, aged four, healthy at birth, raised from the breast, was well until it reached the age of ten months. Since this time it has been troubled with cough. The cough is decidedly worse at night. It expectorates very little. Appetite sometimes very good, at others poor. Very restless in its sleep.

Notice, please, that the cough is worse at night; this is important from a diagnostic stand-point, for whenever you have a cough which is more troublesome after the patient has retired, think of its being reflex in nature. By that I mean a cough which has as its cause not an irritation in the lungs, but at some distant point. As example, we have reflex coughs from ear-disease, worms, indigestion, etc. The pupils are somewhat dilated in this case, and the pulse irregular. With such a history as this in a child, think of worms, but remember this, that there is no single symptom except the finding of worms in the stools, which is diagnostic of them. In this child one worm was passed after the administration of proper remedies, since the expulsion of which the child sleeps well at night, appetite is good, and the cough has disappeared.

Lumbricoid worms are found generally in the jejunum and ileum, but they wander wherever they can. Then they have been found in the stomach, œsophagus, larynx, and trachea. One even travels into the right bronchus. The mouth, nose, biliary and pancreatic ducts, and gall-bladder have in different cases been occupied by these worms. A case is reported where a worm worked itself into the vermiform appendix, causing erosion and finally perforation with its consequent symptom.

If worms are present in the alimentary canal, there is

always an abundance of mucus present. A gastro-intestinal catarrh also exists. This is due to the moving about of the worm. In fact, I doubt very much if the lumbricoid worm can live if these two conditions are not present.

Whenever you have in a child over two years a pallid face, unequal dilatation of pupils (which is said by one authority to be more common than equal), an appetite which varies,—one day good and the next poor,—restless at night, grinding its teeth in its sleep, etc., colicky pains, and a distended abdomen, think of worms.

Treatment.—In this case the following prescription was given, after which a dose of oleum ricini was exhibited :

R Hydrargyri chloridi mite,
Santonin, āā gr. iv.
Ft. chart. No. v.

Sig.—One powder three times a day.

Since every female worm has the power to create sixty million worms, whenever only one or two worms are passed we should always be suspicious that more are present, and I believe that in any case it is a good rule to continue the treatment for a short time after the expulsion of the worms.

A prescription which I like very much is this :

R Santonin, gr. viii;
Ext. spigeliæ et sennæ fld., fʒi. M.
Sig.—One teaspoonful three times a day.

This should be followed by a dose of castor oil. The further treatment of lumbricoid worms is to correct the diseased state of the mucous membrane. The diet should be carefully regulated, only the most digestible and non-irritating food being taken, such as milk-broths, etc. Of drugs, ten-drop doses of dilute hydrochloric acid with a little pepsin is generally sufficient to bring about the change.

Children become infected with lumbricoid worms by drinking water containing the eggs, or by eating food to which they are adherent. These eggs then develop in the system into the worms. In the case of the tape-worm, the life history is a little different. The eggs are passed in the stools of the patient. The development of these eggs takes place not in the human system, but in one of the lower animals,—in the case of the *tænia solium* in the hog, and in that of the *tænia mediocanellata* in beef. In the muscles of these animals are developed cysts—the so-called *cysticerci cellulosa*—which contain the embryo of the tape-worm. Now, when a person

eats raw or imperfectly-cooked meats of animals which are infected, these cysts develop into the tape-worm.

When treating a patient with a tape-worm, unless you succeed in removing the head, a cure will not result, for the segments grow from the head. Now, there are two ways of looking for the head in the passage. One is to pour some carbolic acid (to destroy the odor) and water into the vessel; then don't stir with a stick, but merely shake; allow to settle, and pour off all but the sediment. Continue this until all faecal matter is removed, then examine the sediment for the head. Another way is to pour the passage into a piece of muslin. On this pour water, and continue doing so until all faecal matter is washed out, then examine residue for the head. If you do not find the head you cannot be safe that the worm will not return until three months have elapsed.

Treatment of tape-worms.—The Germans have discovered three articles of diet which are obnoxious to worms,—viz., onions, garlic, and herring; of these they make a salad.

Before giving any medicine for a tape-worm, the patient should fast for twenty-four hours, taking only a little milk and water or a little broth, but just sufficient to sustain life. At the end of this period a mild laxative may be given, after which the vermifuge should be exhibited.

To a child give an ounce of pumpkin-seeds (after the cortical portion has been removed), and to an adult two ounces. These should be finely powdered in a mortar, and then mixed with sugar and milk. Several hours afterwards a dose of castor oil should be taken.

Two other remedies which act very nicely against the tape-worm are male fern and pelletierine.

In searching for the head of a tape-worm a piece of muslin should be tied securely around a bucket, and the diluted faecal evacuations poured upon it; this acting as a fine sieve, the liquid portion passes through, while the segments remain upon the muslin for closer scrutiny.

HIP-JOINT DISEASE AND ITS TREATMENT.*

BY A. M. PHELPS, M.D.,

Professor of Orthopædic Surgery.

GENTLEMEN,—This first case is one of hip-joint disease, occurring in a young girl, who, when she first came to this hospital, about one year ago, was already in the third stage of that disease. For some months previous to this she had been wearing the long traction hip-splint, which had been applied at one of our city dispensaries, at a time when there was very little pain and deformity. While wearing this splint she grew steadily worse, both the tenderness and deformity increasing. On admission the joint was so sensitive that when the bed was substituted for the splint, which she was then wearing, it was found necessary to administer an anæsthetic. She was put into bed *with a long splint applied by means of a plaster of Paris bandage to the body and well leg*, and extension made in the line of the axis of the neck of the femur. After several months of this treatment the deformity was overcome, and the tenderness had disappeared. A splint was then applied which secured perfect immobilization of the joint, in addition to making traction; and with a high shoe on the well side, and a pair of crutches, the patient was allowed to go home for several months. At the time of her admission there was marked fluctuation within the capsule of the joint, but I did not think it advisable to aspirate, or operate on her at that time, because there was every indication that this fluid might be absorbed.

Two weeks ago she returned, and it was found that the capsule had ruptured and its contents had escaped underneath the fascia lata. She was not in pain, and there was a considerable rise of temperature. I thought then it was not well to allow the abscess to burrow down under the muscles, and I accordingly freely opened the abscess, curetted it out and introduced a drainage-tube into the joint. Up to the present time, a period of nearly twelve months, the joint has not been moved. I shall make the first dressing to-day, taking care, however, not to move the joint. You notice that, although there has been considerable discharge, the dressings are perfectly sweet. A dressing of Lister protec-

* Abstract of a Clinical Lecture delivered at the New York Post-Graduate Medical School.

tive gauze and oil-silk with cotton was applied after irrigation with bichloride solution. We are told that it is a very dangerous thing to operate on these abscesses, and that it is better practice to allow the pus to burrow in every direction and find its own exit. We know that a small proportion, possibly ten per cent., of these abscesses are absorbed; but we also know that a very large number of these cases, when left to nature, form many obstinate sinuses, and that out of the twelve per cent. or more of cases of hip-disease which prove fatal a large number are caused by exhaustion, the absorption of purulent material, and from the resulting changes in the kidneys and liver. The object, then, of operative interference is to shorten the time of treatment, preserve the patient from the discomfort and impairment of health due to the existence of chronic sinuses, and especially to avert the fatal termination of many such cases. This seems to me to be scientific surgery. I despise the term "conservative surgery,"—it was born of ignorance, nurtured in fear, and it will eventually find the grave which scientific condemnation will dig for it. "Conservative surgery" does the right thing at the wrong time. Scientific surgery does the right thing at the right time.

What harm can you possibly do to plunge a clean piece of steel into a cavity filled with stinking decomposition infection? But do not, I beg of you, stick a thumb lancet into such an abscess when it has already pointed, and then dress the wound with a handful of oakum. That is the surgery of fear, and is not scientific; it is what is commonly denoted by the name "conservative surgery." Instead of this, carry out the strictest antiseptic surgery in your treatment of these abscesses, and you will come to agree with me that the results are never disastrous, and usually highly gratifying. Let this be your rule in operating: Cut as far as the abscess cavity extends, then you can see just what condition you have to meet. The whole inside of the abscess cavity in this patient at the time of the operation was found lined with a thick membrane, which, if not removed, would have kept up a persistent discharge. Having fully exposed the cavity, you should introduce the finger and ascertain, if possible, the exact pathological condition of the joint. If the head of the femur be found separated from the shaft, it should be removed, as it will only act as a foreign body and cause irritation. The ability to discover and to cope with such conditions as these is one of the great advantages of the operative method of treatment. When a joint has once been filled with pus and tubercular material it is no longer a joint, but simply

an abscess cavity. Many of these cases are of tuberculous origin; such a cavity usually contains not only tubercle bacilli, but streptococci, and consequently we have not only a localized tuberculosis, but an osteo-myelitis of the joint. A tuberculous joint is not a purulent one, because the bacilli of tuberculosis are not pyogenic. When the joint becomes purulent it is because pyogenic germs are inoculated. These pyogenic germs produce the condition known as osteomyelitis, which is one of the most destructive forms of joint-disease. Sinuses leading to non-purulent tuberculous cavities are the highways through which purulent infection travels. Knowing this, why not prevent the multitude of sinuses by operating and protecting the discharges from infection? I think that we should.

This second patient, who is four years old, lay in bed for five months with the hip-joint immobilized, and then this splint was applied, and she was allowed to go around with a high shoe and crutches. (See Fig. 1.)

Examining the patient before us, I find present the eight cardinal symptoms of joint-disease,—viz., pain, heat, swelling, pain on joint-pressure, limited motion, spasm of the muscles, atrophy, and deformity. In disease of the hip-joint, on account of the great depth of the joint, there is seldom, except in the very acute stages, any appreciable local rise of temperature.

In the first stage it is not common for cases to come under observation. At this time there is a slight stiffness in the morning, and the mother will tell you that she has noticed that the child stubs his toe and falls a good deal, and that he cries at night. Examination shows very slight flexion, abduction, and outward rotation, with apparent lengthening of the limb. There is also a flattening of the buttocks and a partial obliteration of the gluteal fold. In the second stage the same symptoms and deformity exist, but more exaggerated. In the third stage the leg is flexed, adducted, and rotated, with or without real shortening. The contraction of the large gluteal muscles in the early stages throws the limb into a position of abduction, and in order to walk the patient tilts the pelvis, thus giving rise to apparent lengthening of the limb. The shortening of the third stage is caused by the destruction of bone, and the deformity is produced by the contraction of the adductors, flexors, and rotators. When the third stage is reached abscesses are frequent, and this fact led Dr. Sayre to suppose that the deformity of the first two stages was the mechanical result of distention of the joint-capsule, and that when the capsule ruptured it gave rise to the change in position no-

ticed in the third stage. Such a theory is obviously erroneous, for comparatively few cases have fluid in the joint, and extra-capsular disease produces the same deformity as intracapsular disease. Many also believed that nearly all cases began as a synovitis following some injury to the cartilage within the capsule; but the knowledge gained from operative procedures has taught us that the disease usually begins in the bone. The muscles around the diseased joint are all in a condition of spasm, and when the limbs are parallel, the gluteal muscles acting on the trochanter, acting with the flexors and rotators, produce the deformity of the first and second stages. When the limb has become flexed, the gluteal muscles, being somewhat twisted when the limb is in that position, cannot act to advantage, and hence the adductors come into play and produce the deformity of the third stage.

Now, as we come to the subject of treatment, let me once more impress upon you that no case of hip-joint disease need recover with angular deformity. Secure immobilization and traction in the manner just described to you, and when the deformity has been overcome allow the patient to get up and go around with a splint which will keep the joint immobilized. If after several months I failed to reduce the deformity, I would not hesitate to overcome it by operation before proceeding to the other steps in the treatment. There is no fear of ankylosis from immobilization; it is movement of the joint which favors ankylosis. Thomas's splint restricts flexion, extension, abduction, and adduction, but it does not stop the spasm of the muscles which causes intra-articular pressure. This is the reason why so many of the cases treated with that splint have abscesses and shortening. In my splint this defect is remedied by the adduction screw and thoracic portion. Before the application of this splint, you noticed that even slight motion of the joint caused this little patient great pain; but now I can pick her up by the band of the brace, and handle her quite roughly, and there is no complaint.

To fix the hip-joint, a splint must extend from the foot to the axilla. (See Figs. 1 and 2.)

Fig. 2 represents the perineal crutch, with the abduction bar (1), adjustable by means of the key (6), for the purpose of making lateral extension. The steel bar (2) is adjusted to the steel ring (3), which makes a firm crutch, the pressure coming on the tuberosity of the ischium. Adhesive straps, extending to near the body from the ankle, furnish means of extension by tightly buckling them to the straps (7, 7), the ring (3) furnishing counter-extension. The rod (5) ending in the upper ring prevents flexion and extension of the leg. The splint

is intended to prevent every motion at the hip-joint, and at the same time apply extension in a line with the neck of the femur. Fig. 1 shows the crutch and splint adjusted, the patient using crutches, and standing upon a high shoe upon the well leg.

FIG. 1.

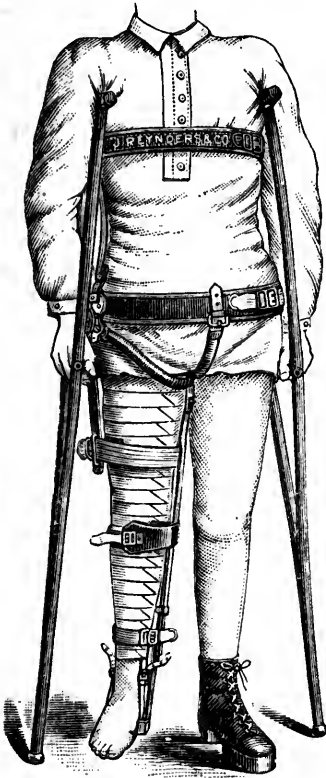
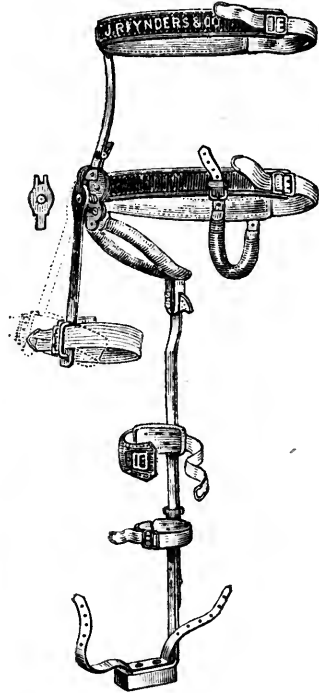


FIG. 2.



This splint I found a little too expensive for dispensary work.

After a time, for my poor patients in the hospitals and dispensaries, I succeeded in perfecting a cheap splint, which applies the principle of fixation and traction in the line of the neck.

A glance at the cut will convey the idea. Fig. 3 is the single and Fig. 4 the double splint for double hip disease. The splint is a bar of steel, extending from the foot to the axilla, accurately bent to fit the body. A tracing made on paper by laying the child on it will assist in shaping the bar. A pelvic

belt, a thoracic belt, and a steel perineal ring complete the fixation part of the splint. The straps in the foot-piece buckle to adhesive straps attached to the leg, which make longitudinal

FIG. 3.

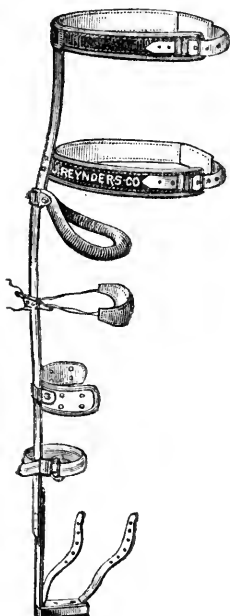
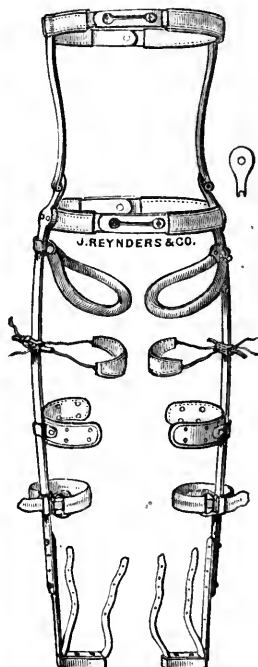


FIG. 4.



traction. The strap lashes the leg to the splint, making lateral traction precisely as the abduction bar acts in Figs. 1 and 2.

An ordinary blacksmith can construct this splint.

Before either these or any other splint is adjusted, however, the patient should be treated in bed until deformity is overcome and the active stage of the disease somewhat modified.

To conclude, my observations lead me to believe that the most serious element of destruction in hip-joint disease is the trauma and pressure produced by the spasm of the muscle; that fixation of the joint without extension is an impossibility; that the successful treatment of the joint must depend upon its absolute immobilization, which can only be produced by proper extension and fixation; that the constitutional treatment of hip-joint disease amounts to but little, independent of mechanical treatment; that mechanics is everything; that extension in a line with the axis of the shaft and deformity alone, in hip-joint

disease, is entirely wrong ; that extension should be made in a line parallel to the axis of the neck,—in other words, two lines of extension, otherwise the idea of extension is not perfectly carried out ; that ankylosis of the joint is not produced by immobilization, but by the severity and character of the inflammation ; that the long traction hip-splints in general use neither properly extend nor immobilize the joint ; that the intra-articular pressure results in the destruction of the joint or ankylosis in a large percentage of cases is proved by statistics ; that the results in hip-joint disease should be as good as those of knee-joint disease, and will be, provided perfect immobilization can be carried out ; that patients should never be allowed to step upon any portative apparatus ; that a high shoe on the well leg and crutches should be insisted upon until the patient is cured ; finally, that the angular deformity seen in cured cases should not occur, and such cases are a standing rebuke to the splint and methods employed. In other words, no patient with hip-joint disease need ever recover with angular deformity. In exceptional neglected cases of dislocation a slight amount of deformity had better be left than resort to osteotomy.

40 WEST THIRTY-FOURTH STREET.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Nasi: The Bearing of Inanition upon Infantile Mortality during the First Month of Life. (*Archiv. Ital. di Ped.*, May, 1890.)

The following are the author's conclusions:

1. The ultimate cause of the greater number of deaths during the first month of life is inanition.

2. Inanition may exist in infants which are apparently strong at birth, but especially with those which are the subjects of congenital weakness.

3. It is of first consideration that proper nutriment be given, and of second consideration that it be given in the proper way.

4. Maternal nourishment is preferable to any other. With strong children it may be taken directly from the breast, or with the aid of an ordinary nursing-bottle. With feeble children a nursing-bottle should be employed.

5. The author believes that the bottle designed by him answers the requirements better than any other.

6. If maternal nourishment is absolutely impossible, one should have recourse to a wet-nurse whose confinement has been sufficiently recent to make her a suitable substitute for the mother.

7. If such a means of nourishment is also impossible, moreover if the milk of the nurse continues to show colostrum corpuscles, the infant should receive a properly-prepared milk, especially for the first few days.

8. That the milk may be properly prepared it is essential that the vessel in which it is prepared be aseptic.

9. Such a preparation, so prepared, may be of more service to the infant than anything else could be; especially is this true for very feeble infants who have no power of suction.

10. Forced nourishment will be limited to a very few cases, and by such means it may be possible to nourish infants born during the sixth month.

11. Alimentation which is entirely artificial, while not advisable in general, will yield better results if practised under entirely normal conditions, hygienically considered.

12. Mixed alimentation is sometimes so carried out as to give the best results, and is the means of saving a large number of children who would otherwise die of inanition. A. F. C.

Von Dohrn: The Mechanism of Respiration in the New-Born. (*Jahrb. f. Kinderh.*, xxx. 1, 2.)

The author's conclusions in regard to the mechanism of respiration in the new-born are as follows:

1. The breathing of the new-born infant is mainly thoracic.
2. The raising of the thorax begins from the upper part and extends downward, in forced respiration.
3. The exchange of air in the new-born, in ordinary respiration, averages thirty-five cubic centimetres and increases with forced respiration to one hundred and twenty cubic centimetres as a maximum. The exchange of air in the new-born amounts to about one-quarter of the entire volume respired, while in adults it is only about one-tenth.
4. On the first day of life the change of air is very small in volume; it increases until the third day, and then sinks a little, subsequently rising again. At the end of the first week it is about a quarter greater in volume than on the first few days.
5. The lungs, as a rule, are not filled with the first few respirations, the alveoli not being well distended until about the second day.
6. The respiration curves in the new-born show no pauses.

A. F. C.

Eisenberg: Sterilized Milk and its Employment for the Nutrition of Children. (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

A decided danger in the artificial feeding of children consists in the fact that animal milk which is not immediately used after being drawn from the udder contains germs which are the result of decomposition and fermentation.

It was established by Pasteur that the decomposition of milk is effected by germs coming from the air, and that these germs are possessed of a high degree of activity. Hueppe showed that there were two varieties of such germs, acid-forming and lab-forming, and that perfect sterilization could easily be accomplished. Soxhlet succeeded in devising an apparatus by which a given portion of milk could be reduced to a proper degree of consistency by boiling in a water-bath for about forty minutes; good results having been many times obtained with milk thus sterilized. Hochsinger devised a plan for sterilizing it for infants on a large scale, and it can now be obtained in the shops thus prepared.

The author has also prepared a simple method of sterili-

zation of milk for family use. It consists of a suitable metallic frame with holders for twelve bottles, which, being graduated in cubic centimetres, admit of easy preparation of milk to the desired consistency. The bottles are closely sealed, and require boiling in a water-bath for thirty minutes. The nipple is to be adjusted to the bottle immediately before giving it to the child. The bottles should then be washed with soda, sand, and water.

A. F. C.

Manfrede: Invertive Ferment in the Animal Organism.
(*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

The question as to the occurrence and origin of invertive ferment in the stomach and intestinal canal is variously answered at the present time. The presence of such a ferment, analogous to the other digestive ferments, and a product of glandular secretion, is generally admitted as existing in the intestine, and by some also as existing in the stomach. The fact that numerous bacteria possess the properties of invertin, and that this ferment has even been separated from them, makes it quite possible that it may be generated by them in the intestinal canal. The determination of this point by investigations upon the intestinal canal of the guinea-pig and the dog was the basis of the author's paper. The method of procedure consisted in taking intestinal secretion and an infusion of the intestinal mucous membrane, and then a filtrate of both, freed by Chamberland's filter from bacteria, and testing it quantitatively as to its invertive action upon solutions of cane-sugar. Many difficulties accompanied the investigation, but the following conclusions were reached:

1. The presence of numerous bacteria, which are the source of invertin in the intestinal canal in connection with the constant presence of the ferment in the intestinal secretion, call for new investigations in regard to the digestion of cane-sugar.

2. The investigations of earlier authors in this field are of no value, partly on account of faulty methods of investigation, partly on account of the fact that commercial cane-sugar always contains a small quantity of glucose.

3. The cause of the so-called spontaneous production of invertin from cane-sugar and its solutions are the micro-organisms which are derived from the air, and are supplied with the possibility of development into invertin. By careful sterilization, the use of a five-per-cent. carbolic acid solution filtration, of the solutions through Chamberland's filter, and precautions against germs of all sorts, this spontaneous conversion can be prevented.

4. In the stomach, where there is no development of bacteria

under normal conditions, invertin is not produced. The opinion of many authors that the acids of the gastric juice, or the mucus of the stomach, or a particular glandular secretion, causes the conversion of the stomach contents into invertin, rests upon errors in investigation.

5. In the intestinal juice, which normally contains many bacteria possessed of the power of conversion into invertin, this substance is constantly found in large quantity. In the guinea-pig it is exclusively due to the activity of micro-organisms. In the dog, while it is not possible to say with certainty that the mucous membrane shares in the production of the ferment, there are many facts which seem to indicate that this is its source.

6. In other organs, especially in the liver, the ferment is not present.

7. On the other hand, in solutions or mixtures obtained by working together parts from all the organs of the body, the gastric mucous membrane alone being excepted, also in mixtures of all the secretions of the body, the mixtures being exposed to the air long enough for the development of bacteria, invertin may be found.

A. F. C.

Epstein: Antiseptic Precautions in the Hygiene of New-Born Children. (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

Our vaunted opinions in regard to infection and infectious disease have thus far taught us nothing in regard to the treatment of a disease which is already in progress; no specific antidotes are known. In the way of prophylaxis much may be done. It has by this means been possible to greatly diminish the mortality from pyo-septicæmia among the newborn. This disease is common not only in public institutions but in private practice, even under the most favorable external surroundings. At this period of life the diagnosis of septicæmia is not easy; fever and chill may be absent; all subjective symptoms are wanting, and even on post-mortem organic changes may not be demonstrable. Intestinal catarrh is a common accompaniment of the disease, also a very decided debility which is present from birth. Cases are very rare in which septicæmia is acquired *in utero* or *inter-partum*. The most common avenue of entrance for the septic matter into the body is the navel; others are possible, all of the exciting matter coming from without. The danger of navel infection is greatest, of course, during the first few days of life, when the navel stump is an open wound. Infection by way of the mouth may occur, as in cases of diphtheria and septic croup, also in aphthæ. Infection may also be due to aspiration of

poisonous amniotic fluid, to contact with the diseased genitals of the mother, or the mucous membrane of the digestive tract may receive the poison. Sepsis may develop insidiously, and not manifest the suppurating processes which lead to a fatal issue until after months or years. The prophylaxis of this disease must begin with the most careful treatment of the umbilical cord. The stump should be cleansed and surrounded with a carbolyzed gauze bandage, the object being to produce a mummification as soon as possible. Moist bandages of all kinds for the stump should be avoided. Even dry antiseptic powders are not of equal value, the use of some of them being followed by the development of fungous growths. A free access of air to the stump will hasten the process of drying and healing. The physician and the nurse must first attend to the new-born baby and then to the mother, the hands being scrupulously clean, especially when handling the navel-string. For the first baths of an infant a harmless antiseptic solution like the hypermanganate of potash should be used. Repeated washing and scouring of the mouth must be avoided, such manipulations are frequently the cause of aphthæ or thrush. A dirty finger must not be placed in the mouth of a new-born baby to remove the secretions, nor may any dirty instruments be used, in case the child is born asphyxiated, to aid in resuscitation. The instillation of a drop of a two-per-cent. solution of nitrate of silver into each eye of a new-born baby should be carried out as well in private as in public practice, and midwives should be instructed to do it in all cases, as a preventive to blennorrhœa. With reference to the feeding of the child with sterilized milk, this is deemed a matter of the greatest importance, but it must not be considered that thereby a perfect substitute for mother's milk is obtained. A. F. C.

Pye, Walter: *Growth-Rates of the Body, and especially of the Limbs, in their Relation to the Processes of Rectification of Deformity.* (*The Lancet*, July 26, 1890; August 30, 1890.)

The author has given three lectures on this subject. The first consists chiefly of the consideration of certain facts as to the normal stature and growth-rate of English-speaking people; then, classifying the social positions of those who are measured, to find out the variations which are apparently due partly to heredity and partly to the conditions under which the individual is born and brought up. The classification adopted is as follows:

1. Relative stature of male adolescents of different social classes, eleven to twelve years old.

2. Relative stature of male adults from twenty-five to thirty years old.

3. Average height at birth and growth-rate of all classes of children aged from two to eight years. (Chiefly from industrial schools and artisans.)

4. Growth of industrial-school children from two to eight years.

5. Growth of children of hospital-patient class, from two to eight years.

6. Growth of children of the most favored classes, from two to eight years.

Tables are given under each of these classes.

As a general statement it appears that the most rapid increase in stature takes place during the first five years of life, not only relatively but absolutely, and that the growth is not notably different in the two sexes for this period.

During the whole period of growth the lower extremities increase in length to five times their original measurement, the trunk trebles it, and the head and neck doubles it.

The greatest growth is during the first year of life, and then in diminishing rate until the eighth year. It is upon the growth-rate of the legs and thighs in early life, say the first six years, that the ultimate stature will chiefly depend.

The part which the diaphysis plays in the production of the normal increase of length of the whole bone is generally considered to be insignificant in comparison to the much more rapid increase in the neighborhood of the epiphysial cartilages. An attempt to ascertain this was made upon three half-grown dogs by marking two points upon the shaft of a long bone with Indian ink.

Later the dogs were killed and the bones examined. The results were consistent in each case. The increase in these half-grown dogs was in three months one-tenth of the whole length of the bone.

The second lecture deals with the manner in which arrest or disturbance of the processes of growth produces dwarfing and deformity of the affected limbs.

Simple arrest of growth may be due to inanition, premature birth, or lack of food, without any definite disease. Infantile syphilis is the cause of considerable arrest of growth.

Strumous epiphysitis, acute or chronic, when it is confined to the epiphysis, and does not affect the joint, also produces shortening.

A concurrent existence of rickets and congenital syphilis or scurvy generally intensifies the rickety symptoms. The disorder which, in children, and to a certain extent in adolescents,

is ordinarily reckoned as affecting most importantly the whole stature and the shapeliness of the limbs, is the common disturbance of the nutritive processes called rickets.

A large number of observations are presented, giving the clinical features of the constitutional disorder and the physical results of the nutritive arrest of skeletal growth and development, which is the principal cause of deformity in this disease.

As long ago as 1832 a paper was written by Alexander Shaw, showing the permanent effects of the disease on the skeleton. He shows that the effect upon the adult of infantile rickets, with arrest of skeletal growth, must be a dwarfing which can never be recovered from, for it is due to a lapsed period of growth which cannot be made up for later.

A general arrest, followed by resumption, will tell far more on the lower limbs than elsewhere, because the natural increase of the lower half of the body, as compared with the upper half, in infancy, is so very much greater in health.

A table is given to prove these statements. It is seen by this that the growth of the upper extremities is arrested by rickets to the extent of about one-thirteenth to about one-fifteenth of its normal amount, while in the lower limbs the arrest is as much as one-third.

The author finds that these observations agree with his own, except that the records of stature are uniformly larger. This is thought to be evidence that in the last sixty years there has been an increase in children's stature; at least in the better parts of London, or the outskirts of larger towns.

A table of seventy-nine observations of rickets in infants, to ascertain the frequency, extent, and duration in time of the arrest of growth, is given. The table shows that in infants attacked with rickets during the second six months of life the average growth-rate is enormously reduced. Arrest of growth may be even complete for three or four months. Curvatures develop easily at this time. The bones are so soft and yielding that the mere weight of the limbs is sufficient to produce their distortion. In later cases the chief mechanical cause of deformity is the weight of the body, the stress of which is chiefly borne by the lower extremities, so that the upper part of the body escapes.

The effect of pressure of the atmosphere is more marked on the chest than at a later stage.

Softening may be so great that quasi-spontaneous fractures may occur before the twelfth month.

Another point about the deformities in this early wasting rickets is the short time which the total arrest lasted as soon as the diet was rectified, and proper hygienic habits adopted.

In two cases only was there no arrest of growth.

Remembering the enormous proportionate rate of growth at this time of life, the effect of arrest, even for only a few months, upon the future stature is really greater than it seems to be at first sight.

From the first to the second year rickets is very common; but the non-marasmic form is now more frequently found.

From the second to the third year the number of cases in which there is any noteworthy arrest of growth is in the minority.

In children attacked in the fourth and fifth year arrest of growth seems hardly ever to occur.

In regard to the prospects of recovery, the author says that if sufficient care were taken in the handling of the infants so as to avoid the causes of mechanical deformities, or promptly to remedy them in their earliest stages, the subjects of rickets would have for the most part only enlarged wrists and ankles and be of a stature less than normal. The head will remain of the same size, but the chest will almost certainly expand again. But acute cases of deformity, which are so readily prevented or rectified during their period of formation, will sometimes resist efforts to straighten them out in the later years of childhood. Judicious manipulation and passive movement, douching, and a carefully-regulated diet will be sufficient to produce a rapid return to the normal shape in the limbs, by reason of their natural tendency to shapeliness being not hampered but encouraged.

For straightening the limbs there is no better plan than by use of plain, well-padded wooden splints. The use of these should be commenced early. It is probable that they act more as passive preventives of the deformity which weight and other mechanical causes are able in these cases, if unchecked, to effect, than as active agents for rectification. The active factors of the recovery of shapeliness are the processes of growth and the moulding by the muscles. In order that these active factors may have full play, splints should not be applied more firmly than is necessary to retain them in position, and that they should be frequently removed for passive and active motion.

Tracings of the lower limbs of several cases are reproduced to illustrate the results of treatment by the use of simple splints.

In cases that will not yield to this simple method, manual fracture of the tibia or fibula may easily produce a great improvement in the deformity, and there is no reason to think that the future growth of the bone will be affected. In double

tibial curves a wedge-shaped piece of bone, as a rule, has to be removed to straighten the deformity. This disturbs the natural processes of rectification, by growth and muscular action, if done before the end of about the fifth year. In later years the objections do not apply with the same force.

The author has had one case, and has seen others, in which it has seemed almost certain that temporary arrest of growth has followed removal of wedges from the shafts of long bones.

Knock-knee is sometimes successfully treated by manipulation and the use of simple wooden splints,—at first long enough to keep the child off its feet. In more stubborn cases, rectification by manual force or osteotomy is required.

In rectification by manual force there probably occurs a partial separation of the epiphysis, or a fracture in the neighborhood.

Macewen's operation of supra-condylar linear sections above the knee-joint is endorsed.

The author has found no case of arrested growth following linear osteotomy for genua-valga in a number of cases followed up for two or three years.

The author divides the cases of so-called late rickets into two classes,—one to which the term "late rickets" may properly be applied, and the other embracing a clinical group, allied to cases of lateral curvature which, developing at about the time of puberty, have long been recognized not to be rickety in nature.

The latter are amenable to treatment in much the same way as rickets in early life. Many surgeons state, however, that these methods are less valuable than well-directed muscular exercise.

II.—MEDICINE.

Bruce: Diseases of the Heart in Children. (*British Medical Journal*, April 26, 1890.)

The various periods through which a case of heart-disease may pass may be discussed under three heads: 1. Acute inflammation. 2. The establishment and maintenance of compensation. 3. The rupture of compensation and failure of the heart.

I. *Acute inflammation.*—Causes are numerous, but rheumatism is far the most common; but the fact that it is so often "latent" and very difficult of detection should never be forgotten. Endocarditis is the disease most often present, but pericarditis is found in many cases, and is frequently rheumatic in character, and the sooner we discover this fact the

better for all concerned. Four tests may be employed to determine whether pericarditis be rheumatic or not,—1, the presence of an endocardial murmur; 2, the effect of anti-rheumatic treatment; 3, tenderness of the joints; 4, the family history.

Several important differences in physical signs must be borne in mind in the examination of these cases in children. The heart lies higher, the apex-beat being usually in the fourth space, and more to the left than in the adult. The impulse is often widely visible and palpable. The sounds have a puerile character, being divided, both periods of silence being marked; frequently deliberate or slow in development. The prominence of the præcordia is especially striking, friction fremitus is distinct, and friction sounds are relatively loud. The area in the back over which systolic murmurs are frequently conducted is often extensive. The author believes it unwise to give a too favorable immediate prognosis. It is no doubt true that acute rheumatic and chronic inflammation of the heart rarely proves directly fatal in young subjects, but it is equally true that its complications are frequently the cause of death. Rheumatic pleuro-pneumonia, associated with endocarditis and pericarditis, is a condition full of peril to life. The ultimate result depends largely upon the hygienic surroundings and social condition of the patient. As a rule, it is better in the child than in the adult. In a certain number of cases the signs of valvular disease ultimately disappear.

In treatment, the first aim must be to cut short any rheumatic attack. Salicin and quinine sometimes succeed where the salicylates fail. Absolute rest in bed, entire freedom from excitement, and proper nursing must be continued week after week. The diet must be rigidly fluid and given in small quantities, at short intervals. Stimulants may be required, sometimes freely. The disease runs an irregular course, sometimes extending from weeks into months. Such cases must be managed rather than "treated." Lack of firmness, patience, and consistency in management must too often account for the severity of some cases of chronic valvular disease.

II. *Period of compensation*.—Compensation occurs with exceptional completeness and rapidity in a child. We are constantly finding evidence of recovery in adults who are known to have had endocarditis in childhood. The first cause of interference with compensation is impoverished blood-supply from any cause. The second cause arises in connection with muscular exertion. Children sometimes strain a weakened valve at play, but this is rare compared with the damage which often occurs to the hearts of hard-working men.

Neither are nervous influences so fruitful of evil in the child as in the adult. The youthful subject of heart-disease must be faithfully watched. We must be on the lookout for symptoms of mental strain and at the same time see that muscular exercise is neither abused nor neglected. We must speak definitely as to games. Simple quiet cricket may be allowed, but match games of any kind and violent games, like football, must be totally forbidden. Cycling would seem to be a safe form of exercise, but actual experience proves it to be dangerous, from a tendency to override.

The subject of chronic valvular disease must be specially protected from rheumatism. The most trifling symptom of its approach must not be disregarded. From ten years to puberty is probably the most trying age. At that time the heart is especially susceptible, and in some cases requires constant attention; periodical examinations should be made, however free from symptoms the child may be.

III. *Heart-failure.*—Symptoms appear only when compensation begins to fail. In several important respects they are peculiar to the child. Cardiac dropsy and albuminuria are infrequent. Pain is also less prominent, but dyspnoea is a constant and striking feature. Epistaxis is also frequent.

Failure of compensation never arises without a cause. No attack of dyspnoea or palpitation should be allowed to pass without diligent search for that cause, for upon that the prognosis will largely depend. If it be muscular exertion, nervous strain, or injudicious treatment, a period of rest and correct treatment will restore the heart. But if rheumatism or other intercurrent disease is at work the danger is great. On the whole, the prognosis of cardiac failure in the child is better than in the adult. When the more marked symptoms, as dropsy, occur the prognosis is especially bad.

Of the various new remedies and cardiac stimulants, there are a number of much value, but, on the whole, digitalis, if rationally employed, is the best. Strychnine, in a one-per-cent. solution of the hydrochlorate, used hypodermically, has in some instances an effect little short of marvellous in restoring the action of the ventricles.

Sinkler, W.: A Case of Pericarditis occurring during an Attack of Acute Chorea. (*Univers. Med. Mag.*, 1890, ii. 483.)

The case occurred in a white boy, six years of age, and presented two points of interest. First, the occurrence of acute pericarditis during the course of an attack of chorea, without any evidence of rheumatism in any of the articula-

tions. During the whole attack the joints were entirely free from pain or swelling. Another point of interest is the fact that the pain was referred to the umbilical region so decidedly and persistently that attention was not directed to the heart for forty-eight hours. The pericarditis, although accompanied with much pain, and its effects being prostrating to the patient, did not increase the chorea at all; in fact, when he recovered from the pericarditis the chorea was much less than it had been at the outset.

Cantrell, J. A.: *Pediculosis Capitis*. (*Annals of Gyn. and Ped.*, 1890, iii. 485.)

While it is not compulsory to cut the hair, its removal will certainly facilitate the cure. The following mixture should be applied once, twice, or thrice daily, being well rubbed into every portion of the scalp:

R Ext. staphisagriae fl., f3ii;
Ac. acetic. dil. (vel vinegar), q.s. ad f5vi. M.

One or two days' treatment generally completes the cure. Common kerosene oil is useful, as well as the following ointments: the ammonium chloride of mercury, from ten to forty grains to the ounce; the fluid extract of staphisagria, two fluidrachms to the ounce, using lard, lanolin, or vaseline for the base. The "nits", when present in large numbers, may be removed by an acid or alkaline lotion.

Stern: *Diabetes Mellitus in Children*. (*Archiv. Italiano di Ped.*, 1890.)

The author began his investigation with the supposition that the literature of this subject was very meagre. Careful study enabled him to find records of one hundred and seventeen cases, of which seventy-five were published prior to 1876. It must not be overlooked that very many cases are never published, and with this fact in view and the considerable number which have been reported, the conclusion is warrantable that the disease is not so very rare. Of the one hundred and seventeen cases, forty-seven were females, thirty-one males; the sex of the others was not indicated. It was believed that the relative frequency of the disease in females as to males was as five to three. Among adults it is the more common in males. Of the one hundred and seventeen cases, six became diabetic during the first year of life; the remainder, between the first and fifteenth years. As to etiology, heredity was of greatest significance, not only the children of diabetic

parents being susceptible, but those of decidedly neuropathic origin. Other causes have been Werlhoff's disease, measles, malarial fever, cold, typhoid, and the excessive use of sugar.

Traumatism, especially blows upon the head, may cause the disease. The symptoms are varied, but the most conspicuous one is the passage of an enormous quantity of urine, the quantity varying from fifteen hundred to four thousand grammes. In one child, fifteen years old, the daily quantity was five thousand two hundred grammes. In some cases albumen was present in the urine in addition to the sugar. In one case there was a trace of acetone, and in another a trace of aceto-acetic acid, the temperature showed little that was abnormal. In some cases there was pronounced anæmia. In some, during the course of the disease, or shortly before death, there appeared eczema, furuncles, abscesses, caries of the teeth, labial herpes, lingual psoriasis, and scrofula. The ears were not unfrequently affected, and there were cases of cataract, both unilateral and bilateral. Indigestion was not uncommon; the heart and the blood-vessels were seldom affected. Death occurred in a number of cases from diabetic coma.

The anatomical conditions were not clearly defined, autopsies could be obtained in only five cases. The duration of the disease was noted in thirty-five cases, and varied between two days and five years.

The prognosis was noted in seventy-seven cases. In fourteen there was complete cure, in seven improvement, four no improvement, and in fifty-two the disease was fatal. The treatment is largely a matter of diet, and with children this is a difficult subject, for it is not easy to confine a child to a meat diet. Sometimes the administration of carbonates is useful, at others it is not. Salicylate of soda has been helpful in some cases, in others no benefit was apparent. In a word, the treatment of diabetes in children is less easy to manage than in adults.

A. F. C.

Copasso: Croupous Pneumonia in Children, and its Treatment. (*Archiv. Italiano di Ped.*, 1890.)

The period of life in which children are very susceptible to this disease is between the first week and the sixth year. Congenital diathesis, including syphilis, does little in creating a predisposition to the disease. Those children may be said to be especially predisposed with whom the thorax is undeveloped relatively to other parts of the body. One of the first and prominent symptoms is the cutaneous erythema localized upon the trunk, and apparent rather in the severe than in the mild

cases of the disease. It is due to the obstructed flow of the blood from all parts of the body towards the thoracic cavity. To this cause is attributable the albuminuria of the disease, the congestion of the liver, of the spleen, and of the brain, while the softness of the tissues can offer no opposition to the dilatation of the capillary vessels. In the so-called cerebral pneumonia the author has found the morbid process limited, in most cases, to the left apex, while there is simple œdema of the pia mater. It is believed that the disease affects the posterior part of the lung more decidedly than the lateral or inferior portions. As a result of this the not infrequent sequels are cardiac weakness, and very slow return of the pulmonary vesicles to their original form and volume. Caseation and tuberculization of the exudate, also induration, suppuration, and gangrene, are very rare at this period. It is believed by the author that croupous pneumonia has an infectious origin. Salicine is not a safe drug to be given so early in life. Leeches may be applied with advantage to the painful points of the chests. The excitants of the nervous system and the heart, including red wine and quinine, also the expectorants, especially polygala, may be given. A. F. C.

Leroux: The Chorea of Sydenham: Its Etiology and its Character. (*Rev. Mens. des Mal. de l'Enf.*, June, 1890.)

This disease develops in children from eight to twelve years of age, the period, likewise, when the so-called growing-pains are at their maximum. At this period and subsequent to it rheumatism is developed and is of frequent occurrence. Between the ages of eleven and twelve—that is, at the premenstrual period—girls are more subject than boys to chorea. At this period also one sees many cases of anæmia in children. In 1888 the author observed 487 cases of anæmia; 395 in girls and 92 in boys. Among the girls there were 48 at the age of eight, 184 from eight to twelve, 142 from twelve to fifteen. Thus between the ages of eleven and twelve one sees the largest number of patients with chorea, anæmia, and growing-pains. It is then also that articular rheumatism begins to be very common. From these co-existing phenomena, can one conclude that one of these diseases will provoke the other, and that chorea is of a rheumatic nature? The author thinks not. Nevertheless, rheumatism, more than the other diseases of childhood, predisposes to chorea, and in certain cases is so associated with it that one has been able, with good reason, to describe a rheumatic chorea. But the cases in which chorea is evolved independently of rheumatism are so numerous that one cannot make out of chorea a cerebro-spinal rheumatism.

Furthermore, those diseases which predispose to chorea, namely, anæmia, infectious diseases, rapid growth, etc., predispose also to rheumatism. Why may not one see, in certain cases, these same causes determining at once chorea and rheumatism? In the words of Brouardel, chorea and rheumatism have in their pathogenesis very close relations, both occurring when severe disorders in relation to the secretions, or an exaggerated nutritive activity during the period of growth, or convalescence from a disease, profoundly modify the general nutrition of the economy. If to these conditions we add hereditary predisposition to neuroses, which is due to the presence in ancestors of rheumatism, hysteria, and alcoholism, there will be a soil favorable for the development of chorea. It is concluded, therefore, that to chorea and rheumatism may be left their reciprocal independence, and that it is preferable to adhere to the opinion of Pinel, who first considered chorea a neurosis. As statistics show that it is especially common at the period when growing-pains, anæmia, premenstrual troubles, and even rheumatism prevail, that is, the period of evolution, of growth in children, the author agrees with Jouffroy and Saire that chorea is a cerebro-spinal neurosis of evolution, a neurosis of growth.

A. F. C.

Heutinel: Pneumonic Form of Tuberculosis in Children. (*Rev. Mens. des Mal. de l'Enf.*, June, 1890.)

Among the numerous varieties of tuberculosis in children, one of the most curious has reference to the dissemination of the lesion in the acute form of the disease. In this form it is seen that the apices are frequently uninvolved, contrary to the usual experience in adults, while the tubercles may be found everywhere else in the lungs. Among the varieties of acute pulmonary tuberculosis, one of the most interesting for investigation is that one which takes the appearance of pneumonia. Such a case is recorded in the person of a child who was seized with malaise fifteen days before it was received at the hospital. There was also slight elevation of temperature. Eight days later there was loss of appetite, vomiting, and cough. When received at the hospital there was dulness in the supra-spinous fossa, murmur, bronchophony, and all the signs which indicated pneumonic changes in the superior lobe of the lung. Pneumonia seemed apparent, and there was also subsequent defervescence, but notwithstanding that the tongue remained dry, the general condition did not improve, and the temperature rose again. Then the diagnosis of tuberculous pneumonia was made, the symptoms became worse, and the child died with phenomena of meningitis. The autopsy revealed caseous

pneumonia of great extent. An exact diagnosis was possible because the beginning of the disease lacked the abruptness with which ordinary pneumonia begins. It had been insidious, and in a short time cavernous râles were heard simultaneously with the tubal breathing. In addition, the fever persisted after the eighth day. In children a pneumonia which has not undergone solution by the eighth day is almost always a tuberculous pneumonia. In addition, there were in the given case oscillations of temperature, extreme weakness, hyperæsthesia of the limbs, hydrarthrosis, and orchitis of a tuberculous nature; and phenomena of meningitis.

In another child, sick only three days, the symptoms were much the same. There were signs of pneumonia at the apex, but the existence of cavernous râles at the apex, the presence of roughness on one side, and the persistence of fever beyond the customary limits caused the author to make the diagnosis of tuberculous pneumonia, which was subsequently confirmed. Such possibilities must be remembered when treating pneumonia, to allow certain reserve as to prognosis. The prognosis of ordinary pneumonia in children is always favorable, that of tuberculous pneumonia is always fatal.

A. F. C.

Neumann: Icterus Neonatorum. (*Virch. Arch.*, cxiv. 3.)

The author has demonstrated in earlier publications that in icterus neonatorum the biliary coloring-matters distributed through the blood, the transudations and the tissues have a tendency, post mortem, to take a granular and crystalline form. A very appropriate object for such an investigation is a small piece from the greater omentum, which one can spread out under the microscope. Adding a little dilute acetic acid to break up the red corpuscles, the fat cells may be seen crammed with bilirubin granules, needles of pigment being constantly absent. Later investigations have shown that in foetuses which die during or immediately after birth traces of bilirubin may usually be found. In eight cases the pigment formation was limited to the fatty tissue, especially to the greater omentum, less decidedly to the subserous tissue of the parietal peritoneum, the capsule of the kidneys, the pericardium, and the mediastinum. In these cases there was no question about the conversion of the blood-coloring matter into biliary coloring-matter, as is the rule in foetuses which have died *in utero*. In cases in which biliary coloring-matter exists, in which the possibility of imbibition with bile from the surrounding elements is excluded, the author concludes that in many children, normal at birth in other respects, there is a small quantity of biliary coloring-matter in solution in the

blood and tissue-secretions which is sufficient to produce a perceptibly icteric tinge. If one could succeed in demonstrating in the navel-string blood of living-born children the biliary coloring-matter (which has not yet been done), this would be a new hint that one must regard icterus neonatorum as a consequence of the development or excess of certain physiological processes of foetal life.

A. F. C.

Hausemann: Extensive Paralyses following Diphtheria. (*Rev. Mens. des Mal. de l'Enf.*, June, 1890.)

The phenomena to be described were observed by the author with great precision upon his own person. He was severely attacked with diphtheritic angina June 19, 1887. The membranes enveloped both tonsils, the *velum palati*, the posterior wall of the pharynx to the entrance of the larynx, the œsophagus, and the nasal cavities. The temperature rose to 40° C., and the urine contained much albumen. The disease was cured in about four weeks. Eighteen days after the beginning of the disease the first symptoms of paralysis were felt upon the right pillar of the velum. The next few days there was much disturbance of sensibility. All at once there was a sensation of formication in the tongue, which gradually increased. Then there was a feeling of uncertainty in the movement of the tongue. This was followed by almost total anæsthesia and paresis of the organ. Nervous troubles developed in the same manner wherever they appeared, terminating in diminution of motor function, and almost in paralysis. Paræsthesia was absent only upon the velum and the top of the larynx. The different organs followed a uniform type in the development of the process, those which were first attacked being those which first showed the diphtheritic focus. Subsequent to the tongue were attacked successively the buccal mucous membrane, the lips, the cheeks, and then the whole figure. There was paresis of the mimicking muscles and the masticating muscles of the face. The senses of smell and taste lost their acuteness, but sight and hearing were unaffected. The process passed downward to the œsophagus and larynx. In the fifth week the second and third branches of the trigeminal were attacked, the facial as far as its innervation of the face extended, then the glosso-pharyngeal and hypoglossal, then the vagus and the spinal accessory in the parts which innervate the larynx and œsophagus. The vagus of the heart and intestine was untouched, but there was weakness of the heart with partial syncope and acceleration of the pulse. At the beginning of the sixth week the disease invaded the upper extremities, then the trunk and lower extremities, with the same suc-

cession of symptoms as before. The disease was propagated in successive periods, each one being announced by subjective symptoms. There was no severe pain, but each day there was general malaise, then intellectual depression, insomnia, and a sensation of heat, but no rise in the temperature. Involvement of the external oculomotorius caused diplopia and crossed images; of the common oculomotorius caused pupillary paresis and a disappearance of pre-existing myopia due to fault of accommodation. As to the hands, there was a sort of athetosis, but such involuntary movements were not produced when the will was brought into action, as by fixing the eyes upon the hands. About the middle of the third month the phenomena of paralysis were at their maximum, and at the same time there had been an improvement in the condition of the pharynx and face. At the end of the fourth month the improvement was decided and convalescence quickly followed. The only treatment used consisted in as tonic a regimen as possible. Massage caused much pain, and hydrotherapy proved entirely inefficacious. From this minute auto-observation the author draws one interesting conclusion relative to the mode of propagation of the diphtheritic virus,—viz., One must distinguish two paths along which the poison may be propagated in the organism: one includes, by metastasis, the lymphatic and blood-streams, this being the way that the disease reached the heart, the kidneys, the joints; and the other, the track of nerves, the virus progressing by contiguity from one nerve to another. As to the nature of the diphtheritic paralysis, the author thinks it consists in a toxic neuritis without characteristic anatomical modifications.

A. F. C.

Battams: Does Diphtheria include Membranous Croup? (*The Lancet*, August 9, 1890.)

No definite answer can be given, because the scientific points on which it should be based are still unsettled. Even if one admitted the identity of the two conditions, there would still remain the difficulty of diagnosis.

Symptoms associated with the early features of measles the writer believes are due to a catarrhal laryngitis. Laryngeal dyspnoea, coming on at a later stage of measles, is membranous and, the writer believes, diphtheritic.

Cases may develop well-marked pharyngeal diphtheria, and later the rash of scarlet fever, and other members of the family may have either scarlet fever or diphtheria.

In the later stages of scarlet fever a membranous laryngitis may develop.

Are these cases diphtheritic?

There are other cases of laryngeal dyspnoea without nasopharyngeal signs, suggesting diphtheria, without swelling of the cervical glands, and with only a trace of albumen in the urine. Such cases can rarely be differentiated before operation or death.

In the writer's experience membranous croup rarely recovers without operation, and he suggests that those who maintain its identity with diphtheria are, at any rate, very frequently right, and they always pursue a safer course than those who hold the opposite view.

III.—SURGERY.

Fleiner : The Origin of Canula-Stenoses in Children who have been Tracheotomized. (*Virchow's Arch.*, Bd. 116, H. 1.)

A child who had been tracheotomized at the age of one and a half years for croup was brought to Czerny's clinic one year later; because of difficult breathing even with the canula in position. When the canula was removed there was intense dyspnoea, due, as was ascertained, to exuberant granulations at the tracheal end of the canula. The granulations were cauterized, but still the canula could not be removed without exciting expiratory dyspnoea, which was allayed by the use of a longer canula. A short time afterwards this was removed, and apparently without disadvantage, but after a few hours there was coughing, asphyxia, and death, though the canula was reintroduced and artificial respiration performed. At the autopsy it was found that the anterior tracheal wall, about five millimetres below the vocal chords, projected inward like a button through the tracheal cartilage, which was bent inward, the diameter of the trachea at that point being only three millimetres. Immediately under this button was the tracheal wound, the borders of which were swollen by granulations, and which was divided into two almost equal parts by a transverse bridle or bridge. Under the tracheal wound, the trachea was ampulla-shaped with a diameter of three centimetres and covered with a swollen mucous membrane. The lower pole of the ampulla was occupied by a firm stricture five millimetres long. A second ampulla was within the first with a ventricle four millimetres in depth, and covered with a mucous membrane even thicker than the other. A certain number of stenoses are due to tracheotomy and to the tracheal canula; tracheotomy *per se*, because after the introduction of the canula into the tracheal slit granulations develop above and below it, and interfere with respiration. Tracheotomy may also favor

the development of stenosis, as if the incision was too large, when the canula is removed there may be a dropping inward of the divided and softened tracheal cartilage during inspiration, while if the incision was too small the introduction of the canula may cause injury to the divided segments of cartilage on one side or the other, or cause them to be so twisted that their ends may project into the lumen of the trachea, a change which may be permanent if it should be necessary to retain the canula for a long time. Again, if the incision is not made squarely in the median line, pressure on projecting portions may cause necrosis and subsequent granulation formation and cicatricial stenosis.

More or less extensive necrosis is likely to take place in all cases at the divided portions of the cartilage, especially when there are complications in connection with the wound, and particularly if the cartilage segments are injured. After the sequestrum of cartilage has been expelled there will of necessity be a defect in the structure of the trachea or the larynx, which can only be remedied by scar-tissue, and this means the possibility of granulation formation and cicatricial stenosis.

A. F. C.

Fischer: Nephrotomy for Tumors in Children. (*Jahrb. Kinderh.*, xxxi. 1, 2.)

From 1873 to 1883 extirpation of a renal tumor was practised ten times upon children. Of this number the operation was fatal in eight cases, and the disease recurred in the other two in nine months and a year and a half, respectively. From 1883 to 1889 six nephrotomies were performed upon children; one died from the operation, and five from recurrence of the tumor. From 1873 to 1888 thirty-one nephrotomies were performed, four being incomplete on account of extensive attachment to surrounding organs and disease of both kidneys. In two cases non-malignant growths were encountered, the operation being successful in one case, and fatal in the other. Of the twenty-five nephrotomies for malignant tumor, one child died upon the table from hemorrhage, nine from shock, vomiting, carbolic acid intoxication, intestinal paralysis, seven from recurrence of the tumor. In nineteen cases the tumor was sarcoma, in one encephaloid cancer, one adeno-sarcoma, one myxo-sarcoma, one carcinoma, two spindle-celled sarcoma, one alveolar sarcoma, one adeno-sarcoma, one myo-sarcoma, three round-celled sarcoma, two spindle and round-celled sarcoma. In eight cases the right kidney was diseased, in five the left. The age of the children varied between eleven months and eleven years. All operations on children under

two years of age were fatal. Of the intraperitoneal operations, fifty-two per cent. were fatal; of the extraperitoneal, ten per cent. Contraindications to the operation are great weakness, absence of one kidney, disease of both kidneys, very large growths and metastases. The extraperitoneal section is relatively without danger. The operation may prolong life. A recurrence may not take place for months. The best protection against recurrence is an early operation. A. F. C.

Bayer: *The Surgery of Herniæ of the Spinal Cord.* (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

The author publishes two cases of hernia of the cord in which he had operated. The first was that of a very atrophic male infant, ten days old, with a meningo-myelocoele as large as an apple in the lumbo-sacral region. The tumor was covered with a reddened and inflamed skin which had already shown signs of necrosis. A gap, of a finger's breadth, could be discerned in the region of the two last dorsal and two first lumbar vertebræ. The gangrenous portions were disinfected and removed, two lateral flaps were made from the skin surface of the tumor, then the sac of the meningocele was opened, the cauda equina separated as carefully as possible from its inner wall, and laid in the canal of the fissured cord. Finally the larger portion of the sac was removed and the wound carefully sutured. On the fifth day after the operation the sutures were removed. On the nineteenth day after the operation a small portion of cerebro-spinal fluid trickled out of the small fistula which remained after the rest of the wound had healed; this drainage lasted six days, and then a silk suture was extended from the fistula. The child recovered, and was apparently developed in a normal manner, but two months subsequently his death was announced. Then it was ascertained that the scar had become ulcerated, and was very imperfectly cared for, the cranium had become enormously enlarged, the sutures being diastatic, there was extensive myosis with paralysis of the left facial and hypoglossus, also hemiplegia. There was no autopsy.

The second case was that of a well-nourished child, ten months old, with a meningocele upon the posterior half of the greater fontanelle and a meningo-myelocoele, cystic in character, as large as a child's head, in the lumbo-sacral region. There was paresis of both lower extremities, with incontinence of urine and fæces. After an unsuccessful but harmless puncture of the tumor, from which eight hundred and eighty cubic centimetres of cerebro-spinal fluid were removed, the radical operation was performed. Two transverse skin flaps were

made, the tumor was ligated and removed. In the posterior wall of the cyst and at its upper pole there was a portion of the spinal cord six centimetres long; posteriorly the cavity of the cyst was bounded by the spinal cord, but everywhere else by the arachnoid membrane. The cord running in the posterior cyst-wall contained a central cavity which was lined with cylindrical epithelium. The progress after the operation was favorable, no paralysis occurred, and after one month the child was well.

A. F. C.

Kuster: Elementary Considerations concerning the Treatment of Suppuration in Cavities with Firm Walls. (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

This paper was read before the Berlin Medical Society, and the following points were elicited in the discussion.

Senator discussed the question of incision of the thorax in empyema occurring in small children. This he thought might be indicated in some cases, but not so urgently as in adults. Frequently the result of this disease in children was favorable without incision, for the pus might find exit through the bronchi without the formation of pneumothorax, and again, puncture alone, without irrigation, might lead to healing of the disease. Again, section at a late period, if necessary, gives no worse results than the early operation. On the other hand, puncture should not be tried more than twice before recourse is had to incision.

Henoch recalled only two or three cases, out of a very large experience, in which empyema in children, after scarlet fever, was radically cured by puncture, in all other cases incision of the thorax was required. He disapproved of the course of Bouchut, who, in one case, had punctured the thorax twelve times. Hectic fever when present was an urgent indication for incision. But fever might be absent and empyema still be present, in which case incision would still be indicated after one or two ineffectual punctures. If dyspnoea were so urgent that with any sudden move of the child death would be imminent, one must no longer defer the incision. He usually resected one or two ribs, and with gratifying results. With phthisical children, however, the operation should not be performed, and in cases in which he had tried it the patients had died more promptly than would have been the case without the operation.

A. F. C.

Marsh: On the Treatment of Tubercular Disease of Joints. (*The Lancet*, July 26, 1890.)

This paper is an answer to a criticism made by Mr. Croft

upon the conclusions and figures contained in the lectures delivered by the author last year. Mr. Croft holds that tubercular disease of the joints should be treated by early excision, "either as soon as pus is known to be present, even if the surgeon is uncertain regarding the condition of the bones," or "as soon as caseation is even suspected."

Mr. Marsh holds that tuberculosis of the joints is much less formidable and intractable than many have supposed, and that if treatment by rest and its accessories is adopted early, and is adequately carried out, early excision is uncalled for.

In support of this position the author reviews conclusions stated in his lectures, an abstract of which has already appeared in this journal.

He then takes up the six heads made by Mr. Croft, that are at issue between those who would and those who would not excise a joint as soon as matter forms or caseation is suspected. These points are (*a*) mortality, (*b*) necrosis, (*c*) shortening, (*d*) duration of illness, (*e*) risk and precipitation of general infection, (*f*) transitory nature of the tubercular tendency.

Marsh's conclusions on these points are as follows:

Mortality is less in the non-operative method of treatment.

Necrosis is rare, and sequestra are either rare or are broken down and got rid of in the discharge.

As to shortening, the figures at present show about the same in excision and non-excision cases.

The duration of illness is at least as long in non-excision as in excision cases. Figures are yet unreliable in the excision cases.

Early excision does not decrease the danger of general infection. It is nearly impossible to be certain that no tubercle is left behind.

It is especially noticeable that the operation of excision in the treatment of tuberculosis of the joints is almost unknown in the well-to-do.

Such a fact clearly shows that means exist by which the operation can be avoided; and yet at the present day the well-to-do accept the advances which surgery has lately made.

But as to excision, they and their advisers almost invariably reject it, for they learn, first, that the results are unsatisfactory, and, secondly, that there are alternative and more promising means to be adopted.

Gough, J. Harley: Cases of Tracheotomy for Scald of the Larynx. (*The Lancet*, July 19, 1890.)

This paper gives the histories of five cases of scald of the larynx in which tracheotomy was performed; three cases re-

covered and two died. The author has had thirteen cases of scald of the mouth and larynx, out of which five have required tracheotomy, because of the urgent laryngeal symptoms. All the cases occurred in young children, and resulted from attempts to drink boiling water or tea from the spout of a kettle. The symptoms of the thirteen cases varied from a slight soreness of the mouth and fauces, with a hoarse, croupy cough, to impending death from suffocation.

The treatment adopted was either (1) the inhalation of steam in a tracheotomy tent, with hot moist sponges to the throat, or (2) iced packs applied to the throat, and iced water, or iced milk and water, administered in teaspoonful doses every few minutes.

Tracheotomy was resorted to as soon as symptoms of laryngeal obstruction became urgent.

Chloroform was used sufficient to annul pain during the skin incision. The upper rings of the trachea were divided after they were fixed with a sharp hook. A Fuller's bivalve and canula were inserted and tied in.

For the first twenty-four or thirty-six hours after the operation nutrient enemata of brandy, beef-tea, and milk were given, after which liquid nourishment could generally be well taken by the mouth.

Morgan: Double Empyema: Consecutive Removal of Rib from both Sides of Thorax. (*The Lancet*, July 19, 1890.)

There are few examples of this condition on record in which recovery followed any method of treatment. The case is therefore an interesting one. Writing on the subject, Mr. Godlie says that double empyema is almost necessarily fatal unless one or the other be localized, except in those cases in which the purulent contents are absorbed. He also says that if a general empyema have been opened on one side, obviously the only treatment for the other is aspiration.

Mr. Morgan's case was a boy, aged six years, whose illness began eight days before admission. He had had sore throat and pneumonia.

Fluid was found to be present on both sides of the thorax, and was most extensive on the left.

The child rested on the left side. The following day eight ounces of nearly clear fluid was drawn from the left side. This was followed by relief in the dyspnoea, and the child now rested upon the right side; the respiration fell from sixty-eight to fifty-two per minute.

About ten days after admission twenty-two ounces of pus

were removed from the right side by means of the aspirator, and two days later four ounces of pus were removed from the left side. The boy continued to fail, and the operation of opening the left pleural cavity by resecting a rib was done. A large quantity of pus was evacuated. Great benefit ensued at once, but the condition of the right thorax prevented great improvement in his general health. Twelve days after the former operation a similar operation was done on the right side. A very large quantity of pus came away.

The patient made a good recovery, was discharged with both openings soundly healed, and was seen one month later in perfect health.

One year later it was found that the periosteum in the region on both sides, from which bone had been removed, had thrown out bone, which formed a firm covering to that part of the thorax. Respiration over the whole thorax appeared perfectly normal.

Remarks.—In the case related there seemed nothing to contraindicate, the operation being done on both sides simultaneously, except the very feeble and exhausted condition of the boy.

The relief given to the pressure upon the lung by the release of the contents of a large empyema is often followed by reaction, as the component parts of the area in which pressure has been exercised expand to resume their normal position and function.

Morgan thinks that there is no analogy between opening an empyema cavity and opening the healthy pleura, as to permitting air to enter. An empyema is limited by the margin of the abscess cavity, and has less weight and power of pressure than the fluid which it replaces.

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THERAPEUTICS OF INFANCY AND CHILDHOOD.

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Late President of the New York Academy of Medicine, Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons, New York, etc.

(Continued from June (1890) number.)

VII.—DISEASES OF THE GENITO-URINARY ORGANS.

THE development of the genital organs begins in the sixth week of embryonic life, that of the urorectal septum, by which the urethra of the penis is formed, about the middle of the third month. About the same time the anterior part of the urethra is developed by the invagination of the epidermoid integument of the glans penis. This invagination extends backward to the valvula Guérin in the fossa navicularis. Here, where the two parts of the urethra are to meet, the opportunity is furnished for the occurrence of many anomalies.

That invagination may not take place at all. In that case there is no indication of an anterior urethra. There may be a superficial epithelial obstruction of the urethra after it has been formed, with retention of urine behind it; or a partial contraction or narrowness of the external orifice, particularly in cases of genuine phimosis; or a genuine stricture in the pars cavernosa, of which instances have been reported by Guyon, Englisch, and Demme; or an extensive obstruction mostly complicated with rectal anomalies, and retention of urine,

dilatation of the ureters and renal pelves ; or, finally (in a few reported cases), obstruction of the neck of the bladder, with the same disturbances unless the urachus be forcibly kept open.

The emission of urine begins about the middle of foetal life. Sometimes the connection of the two parts of the urethra has not been established ; in that case there is a dilatation behind the fossa navicularis with a constantly-growing lake of urine. Its pressure may succeed in breaking through the obstacle with or without the formation of a valve, or it will burst the lower wall of the urethra behind the obstacle and form a mild form of hypospadias. If the urethra be perforated farther back, the hypospadias may be scrotal or perineal. That hypospadias may occur in this way, and not only by an arrest of development, is proven by the occurrence of cicatrices, and such contraction as depends on cicatrization only.

Many of these anomalies are the subjects of surgical interference. Fortunately, all of them are but rare, as the careful reports gathered by Kauffmann in "*Deutsche Chirurgie*," and Boker in "*Gerhardt's Manual*" will prove. Epithelial obstruction of the external orifice can be remedied by puncturing and dilatation of the external orifice ; one such case I have seen thirty years ago, and never since. Membranous obstruction in the fossa navicularis has been pierced ; even a case of foetal imperforation of the glans penis has been perforated by Rauchfuss with apparent success. Congenital strictures have been treated with bougies. The narrow orifices of hypospadias have been dilated with bougies, or the knife, or both, and laminaria tents used to render the effect permanent. And hypospadias has been greatly benefited by operative procedures, with better success in modern times than the plastic operations of Dieffenbach could boast of.

The *prepuce* begins to be evolved about the end of the third and in the beginning of the fourth month of embryonic life. Within a month afterwards it extends to the middle of the glans. Its covering epithelia are pavement. They form from six to eight superjacent layers, and extend as far as the urethra and sometimes into the fossa navicularis. They are also those which constitute the more or less numerous accumulations, principally about the corona glandis, which were

formerly taken to be fat, the so-called epithelial pearls. They are met with as early as the fifth month of uterogestation. They are sometimes so large as to raise the adjoining part of the prepuce from the surface of the glans and to form small cavities around themselves, thus contributing to the spontaneous separation of the *preputial adhesions*.

These adhesions are vastly more frequently soft agglutinations than solid unions. The causation is simple; as the prepuce and glans are in close juxtaposition, the epithelia of both remain moist, and thus become coherent. It is only in those cases in which the prepuce does not snugly cover the glans, for instance in hypospadias and epispadias, that no, or but partial, cohesion takes place. Still there are cases in which the union of the two surfaces becomes quite firm, partly in consequence of the occurrence of an inflammatory exudation, and partly because of the existence of an extraordinary amount of superficial papillæ, which, according to Englisch, grasp and join each other. Thus the soft cohesion of the prepuce and glans penis is a physiological condition, and therefore met with in almost every male child. The degree, however, to which it is developed is liable to differ. The prepuce of the newly-born being long, it may cover the whole glans down to the orifice of the urethra, and then by its overlapping adhesion give rise to retention of urine, and in consequence of irritation by urine, and of the traction invariably connected with the slightest changes in the shape of the organ during micturition, to pain, redness, muco-purulent secretion, sometimes moderate extravasation, and erections which again produce a local irritation of the surface. It is the erections, when frequently repeated, and when occurring more normally in later years, combined with the effects of the cavity formations round the epithelial pearls, which usher in the gradual and final separation of the prepuce from the glans penis. That process takes place between about the ninth and thirteenth year of life. Thus, in the vast majority of cases, no interference is required. The more gradual the separation takes place the safer it proves. It is only artificial disjunction which may become a danger by secondary changes. The only reason for interference is in retention of urine and balanitis, both of which

are often found together. The separation succeeds in most cases quite easily by holding the glans gently but firmly between the fingers and pushing or pulling the prepuce in the direction of the corona. Towards the end of the operation the pearls make their appearance; the separation, however, must be completed without interfering with them, and the prepuce then carried forward again to avoid paraphimosis; for there will be some slight œdema by which the latter might be occasioned. Before that is done, the application of vaseline, or zinc or lead ointment, or a dust of boracic acid or subnitrate of bismuth, or of a mixture of one part of salicylic acid, fifteen of bismuth, and twenty of talcum, is advisable. Carbolic acid is contraindicated because of its tendency to facilitate bleeding, though that be ever so slight. In most cases it is best not to repeat the procedure for some time, in order not to disturb the healing and hardening process. Every wound or tear may bring on cicatrization and secondary phimosis. In some cases the separation does not take place quite readily; in them a blunt probe introduced between the two layers will overcome the obstacle. Probe and fingers will succeed, if care and time be taken, not only to accomplish the end in view, but also to avoid tearing, bleeding, œdema, and inflammation. The occurrence of cicatrization is always a serious matter. I have succeeded without it in many more cases than I could take notes of. For the number of cases in which you will be consulted in reference to the advisability of circumcision—which is one of the modern onslaughts upon the genito-urinary organs—is very great. Twenty-nine out of thirty alleged cases of unconquerable phimosis are exactly of the kind in which a patient reduction and separation prevent both a surgical operation and a surgical fee. The solid cohesion which requires the use of the knife, and a careful and expert operator, is very rare; I have seen but one that was complete, in a lifetime. I cannot imagine that a total synechia is curable without a plastic operation, or a total removal of the prepuce after its separation. For new adhesion must follow the operative separation in the absence of mucous membrane.

From what I have said it follows that we cannot recognize the existence of an actual *phimosis* in the young before the

epithelial agglutination has been relieved. The actual cases may exhibit a long or a short prepuce, be partial or total, congenital or acquired, atrophic or hypertrophic. The last species is often dependent on changes in the internal lamina of the prepuce, which, when originally contracted and tight, is subject to inflammatory and exudative processes; the atrophic form is due more frequently to a defective development of the integument, which thereby becomes attenuated. Both of these forms are liable to be congenital, and either is found as well among infants and children as in later life. The degree of the phimosis depends upon the development of those anomalies, and also upon the degree of the presence of the elastic layer described by Reiner and situated between the two laminae of the prepuce.

Phimosis may be acquired by pathological changes of the tissue depending on accidental morbid processes. Dropsy may so swell the prepuce as to result in it. The frænulum, congenitally short or otherwise, may suppurate and cicatrize. Inflammation and ulceration from whatever cause, irritation and tears following inconsiderate or unsuccessful attempts at separating epithelial adhesions, and the cicatrization of circumcision wounds are apt to render the edges of the prepuce unduly rigid.

The symptoms of phimosis may be both local and general. Irritation by contact with urine, and pouching of the prepuce by mechanical retention, is quite frequent. Smegma becomes rancid when the original epithelial adhesion has been separated. Retention of urine, or incontinence, or both combined, are often met with. The former and the spastic dysuria produced thereby result in straining, vesical symptoms resembling those met with in vesical calculus, prolapsus of the rectum with more or less constant tenesmus, the protrusion of hernia, the formation of struma, have been observed. Like balanitis, which is frequent, cystitis and hæmaturia have been observed. The local irritation gives rise to erection, sexual excitement, and masturbation in the youngest of infants. Headaches are said to be frequent and temporary, and permanent nervous symptoms in great numbers have been attributed to phimosis. It has become quite customary, though less so to-day than ten

years ago, to attribute severe nervous derangements to it. A London neurologist has made the statement that in twenty-five cases of epilepsy he found congenital phimosis eleven times. The so-called reflex paralysis from genito-urinary causes has played and is still playing an important part in American pathology. Numerous cases of infantile poliomyelitis and cerebral paralysis, spastic paraplegia and paralysis, chorea, epilepsy, contractures, and idiocy have been explained by the presence of phimosis. The numerous cases alluded to of alleged phimosis, in which the separation of the preputial adhesion and apparent phimosis was easily accomplished, were exactly such as had been condemned to be operated upon for a serious spinal or cerebral disease. There was a time when, in a New York medical society, one of the authors of the theory of genito-urinary reflex paralysis related cases of contracture and convulsions. When reminded of his cases being convulsive and not paralytic, he retorted he was no physiological theorist, but he cured his patients. In another meeting, years afterwards, I stated that I had never seen a case that obliged me to assume a causal connection between paralysis or contraction on one hand, and phimosis on the other, and was sustained by neurologists of rank, who also denied ever having seen a case which necessitated the assumption of a genito-urinary etiology. Still the bug-bear is alive yet, many a prepuce is sacrificed, many a fee pocketed, many a diagnosis not made, and many a case either procrastinated or not cured.

Many a case of moderate phimosis is best treated by the gentle method of gradual retraction, many a one is improved by the normal erection of micturition, and from other causes. Thus it was that dozens of years ago an experienced pediatric surgeon, Guersant, could state that he seldom operated for phimosis before the fourth or fifth year. Forcible dilatation, if resulting in fissures of the edge, must be frequently repeated to avoid hard cicatrization and consecutive contraction. Such cases as are not amenable to that treatment require the knife or scissors. The incision of the inner lamina alone, which has been recommended, is very apt to be incomplete, though painful, and to lead to swelling and imperfect results. The

atrophic variety requires a dorsal incision by either knife, carried on a director, or a pair of scissors; the inner lamina is often not thoroughly divided, and requires the repetition of the incision; when the scissors cannot be carried over the whole length of the glans, it has become necessary to first cut down on the corona glandis, thus to enable the operator to carry the scissors over the entire length. The cut edges are mostly subjected to Kocher's continuous suture, and the whole surface treated antiseptically, with bismuth or corrosive sublimate. The lower corners are mostly rounded off. This is particularly necessary in the cases of hypertrophic phimosis which are subjected to the same surgical treatment. Most of this class, however, demand complete circumcision, care being taken that more is removed of the dorsal prepuce than of the opposite side, that the inner lamina is separately divided afterwards and the epithelial adhesion carefully separated. The prepuce must be drawn forward sufficiently to protect the glans against being injured; more than once have I seen it mutilated. In one case the mutilated glans became infected with diphtheria. The wound must be sutured, and treated antiseptically. One of the saddest cases of my whole life, and one of persistent distress, was the death from erysipelas from that simple operation performed on a boy of three years. Infections of circumcision wounds by bacteric poisons are quite frequent; such of diphtheritic invasions I have published in my treatise of diphtheria ten years ago, and before that in the second volume of "*Gerhardt's Manual*;" many more I have seen since; and syphilis and tuberculosis have been known to follow many instances of either surgical or, more frequently, ritualistic circumcision.

Diphtheria of the prepuce, or rather the genito-urinary organs in general, the female included, may occur as an originally local affection—such as those alluded to—or a part of the general infectious diseases. The latter are mainly diphtheria, scarlatina, and measles. The last named is the very malady which appears to predispose the system to the most vehement forms of local invasions. The aphthous vulvitis of little girls, and noma, are mostly found after measles, and diphtheria, when found after the same eruption, is more apt

to destroy life with general symptoms. In many cases of localized diphtheria, however, the constitutional symptoms are but few, provided that effective local treatment is immediately resorted to. Absolute cleanliness of the parts, sponging and bathing, is first in order, after that, local disinfection. Applications of lime-water will suffice for mild cases; solutions of one or two parts of sulpho-carbolate of zinc in one hundred of water, or from one to five per cent. solutions in water of acetico-tartrate of aluminium will act well. These two may be used to advantage as a vaginal injection in the case of the smallest girls. The point of a small hard-rubber syringe can be lengthened by a thin india-rubber tube, from half an inch to an inch in length, which passes the hymen easily and permits an irrigation of the otherwise inaccessible parts. In many cases solutions of the bichloride of mercury proved successful; for occasional applications, of one in from three to five hundred of water; for frequent use, of one in from two to five thousand. Iodoform as a powder, or in from eight to fifteen parts of vaseline, has rendered very effective services.

Noma of the vulva and vagina requires more determined local treatment, besides assiduous roborant and stimulant administrations. Mineral acids in full strength, strong solutions of corrosive sublimate, have proved efficient in many cases in which the progress of the disease was not too rapid. I have had most successes with the actual cautery. *Pyoktanin* I have used lately in a case of *noma* of the face, and in one of the vulva, and found it absolutely worthless.

Paraphimosis is always an artefact. The separation of the epithelial congenital adhesion and the dilatation of a *phimosis* are liable to be followed by œdematous swelling. In both cases the prepuce must be drawn back over the glans. If that be omitted, the prepuce—relatively long in the child—becomes swelled, and often gangrenous. Fortunately, the penis itself is not often drawn into that process. For the purpose of reduction, the glans penis, which is considerably swelled, is persistently compressed by both hands while the prepuce is drawn forward. A good deal of force is sometimes required, and not infrequently an anæsthetic. Sometimes gradual compression by bandages (cotton or rubber) must precede the

attempt at reduction; in some cases, however, a careful incision of the prepuce, the more careful when no director can be introduced between glans and prepuce, is unavoidable to relieve the constriction.

The treatment of the more common forms of *balanitis* and *balano-posthitis*, occasioned by the decomposition of smegma, or masturbation, or gonorrhœa, or trauma, such as the constriction of the organ by a string, is not always quite simple. When there is much œdema it may become necessary to incise the prepuce to get at the sore surface. In most cases, however, astringent or disinfectant solutions can be applied readily either directly or through a small syringe. Solutions of acetate of lead, sulphate of zinc, alum, tannin, the sulpho-carbolate of zinc, the acetico-tartrate of aluminium can be employed in different strength. Among the poor, when assiduous attention is out of the question, ointments or powders are preferable. Ointments are best made for this purpose with vaseline. Warm bathing and sponging will improve the chances of rapid improvement.

A similar local treatment is adapted to the *vulvar and vaginal catarrh* of both the adult and the infant or child. It is very common among the latter, and quite obstinate because of the comparative inaccessibility of the parts, no matter whether the catarrh is simple or specific. The causes of the former are very various. A predisposition may depend on the structural debility, with chronic inflammation, of most tissues, which we are in the habit of calling scrofulous. Local exposure to cold, sitting on house-stoops, the irritation brought on by masturbation, or by foreign bodies, mud, cotton, carpet-fuzz, glass, wood, all of which I have found in the narrowest vaginæ; also oxyuris emigrating from the rectum, the use of soiled cloths and towels, and the neglect of the most common cleanliness, are among the most frequent causes of vaginal catarrh. Specific vaginal catarrh (gonorrhœal colpitis) is by no means rare. The infection, though most often indirect, and conveyed by towels, bed-sheets, etc., gives rise, nevertheless, even in the smallest children, to glandular swellings, endo- and parametritis and peritonitis, also to urethritis, though the latter appears to be less common in children than in adults. That contagion should

take place through the air, according to Bouchard, I have never been able to observe. Besides the local treatment, in conformity with the details given above, absolute cleanliness of the body and clothing, and frequent (general and hip-) baths are required. Masturbation must be guarded against, and foreign bodies sought out and removed. Rectal oxynurides require injections with water, or garlic decoctions, or cod-liver oil. They must be frequently repeated, and resumed after the intermission of weeks, because of the repeated immigration into the rectum from the upper parts of the intestine, where the nematoid has its habitat. In specific cases the transmission of the virus to the eyes and to other persons must be guarded against. To reach the recesses of the vagina, partial or total removal of the hymen has been advised; but I have met with no such indications. Besides the solutions enumerated above, nitrate of silver has been advised. I have used it in solutions of one in from five hundred to a thousand, in a number of cases of ulcerative catarrh. In some the restitution of the superficial losses of substance appeared to be more rapid. In stronger solutions and in substance it has been employed in tubercular ulcerations, in reference to which I have no experience. In many cases of vaginal catarrh the surrounding parts are sore and suppurating, or eczematous. Lead or bismuth ointments, or bismuth powder, with or without salicylic acid, will effect a cure of that complication.

A frequent result of vaginal catarrh of long standing is a moderate degree of *atresia* of the vagina. It is usually of an epithelial character only, and can be remedied by tearing the adhesion with both hands, or by piercing with a probe and dilating the artificial opening. Astringent applications will prevent the renewal of the closure. Diphtheritic inflammation of the vulva and vagina I have known to result in pretty firm occlusion. In one case the reopening required some force, and the continued use of bougies and astringent applications to prevent a repetition of the union. The *imperforate condition of the hymen*, mostly congenital, is but the same process of epithelial and inflammatory cohesion accomplished during foetal life. According to its early or later formation, and according to the presence or absence of vaginal complications, it requires

either the probe or the knife. Such a complication is mostly the result of either an arrest of development or inflammatory malformation. An early adhesive inflammation of the vagina will obstruct it in its entire length, or a transverse obstruction of the ducts of Müller may produce an absence of the vagina below the external os uteri.

Vaginal hemorrhage, of a slight degree, has been observed in the newly-born, without any complication, least so with bleeding from other organs. It is mostly very slight. In masturbating infants and children, and some of those who suffer from a severe vaginal catarrh, some blood may be noticed. It requires no special treatment; nor was there an indication or an opportunity to interfere in the very rare cases of genuine menstruation in the very young, which have been reported.

In connection with vaginal catarrh I mentioned *masturbation* as one of the causes. Still, it is not only a cause in some cases, in many others it is its effect. Indeed, masturbation is so frequent that a few words on the subject may be deemed permissible at this place. But lately, in the April, 1890, number of the ARCHIVES OF PEDIATRICS, a clinical lecture of mine was published. There, and in a previous essay published in the *American Journal of Diseases of Children and Women*, of 1875, I demonstrated the frequency of that habit in infants and children; more in girls of the earliest infancy, more in boys of advancing years, and a variety of causes leading to it. Such are local irritation of the genitals in the very youngest, excitation in those older, feather beds, excess of animal food, and stimulating beverages, rancid smegma, eruptions on the penis, vaginal and vesical catarrh, renal calculi, preputial adhesion, phimosis, oxyuris, and constipation. Among remedies, I recommended the relief of the causes as enumerated, and partly alluded to in the course of these remarks: cooling diet and coverings, attention to kidneys, bladder, and rectum, relief of external irritation by clothing, removal from the bed upon awakening, cold bathing and sponging, mechanical prevention, and timely punishment.

Cryptorchis is the absence of the testicle from the scrotum. Normally it descends in the ninth month of uterogestation, or during the first weeks of extrauterine life, but sometimes at a

later period, or not at all. In the latter case, particularly when incarcerated in the canal, it is apt to undergo malignant degeneration. When in its descensus it gets under the femoral arch, resembling a crural hernia, or to the perineum, it is subject to inflammation, and requires the application of ice, and occasionally a local depletion, or a puncture for the relief of effusion; and sedatives for the removal of reflex convulsions. In most cases of incomplete descensus the testicle is found in the inguinal canal, slightly movable, and often complicated with hernia. No matter whether this complication is present or not, that treatment consists in the application and constant wearing of a truss so adjusted as to keep the testicle below and the intestine above. Its effect can be enhanced by frequent and gentle massage. This simple treatment I have found effective in so many cases that Ashby and Wright's advice—not to rely on it but to operate and either fix the testicle below or remove it altogether—appears to me almost incomprehensible. Indeed, I can approve of their view only in those cases in which the testicle and intestine are bound by adhesions.

Orchitis is occasionally found in children. The acute form is either traumatic, or alternates with parotitis, or no cause is obvious. The treatment has to be conducted on general principles, and consists in the local use of ice, of purgatives, and, occasionally, antipyretics and narcotics. Leeches resulted, in a few of my cases, in extensive swelling of the scrotum. Chronic orchitis is mostly combined with epididymitis, the result of trauma combined with a scrofulous disposition. It is apt to lead to induration, caseation, and tuberculization. If that occurs, the organ ought to be removed to avoid general tuberculosis.

Primary *tuberculosis* appears to begin mostly in the epididymis, and requires removal, as well as *dermoids*, *sarcomata*, and *carcinomata*. Of the latter, I have lately seen a case in a boy of four years. It was removed nineteen months ago, and no new local trouble has arisen. Not even the lymph-bodies of the neighborhood are attacked, but the disease appears to have invaded the lungs.

Syphilis of the testes requires a strict anti-syphilitic treatment. There is no objection to the internal administration of

mercurials and iodides; but in the first few weeks a daily hypodermic injection of a soluble mercurial salt will improve the chances of recovery.

Hydrocele is a frequent occurrence. A few drops of serum are normally found in the tunica vaginalis propria. Larger accumulations of serum are met with in more than ten per cent. of all male infants,—mostly on the right side, seldom on both. In the majority of cases there is no longer a communication with the abdominal cavity. When it remains, a hernia may complicate the hydrocele, and the diagnosis may be more difficult because, in such a case, the fluid is apt to return occasionally into the abdomen. Spontaneous absorption is not very rare, and suppuration uncommon. I have injected alcohol, and diluted tincture of iodine, and setoned the scrotum with either silver wire or silk. All of these methods are bad. Simple punctures, one or more, made once or repeatedly, will allow the escape of the fluid, which frequently does not return after the first procedure. It is best to dislodge the integument a little, so as to have no direct escape of the serum. The cases in which the communication with the abdominal cavity is still patent, require the application of a truss after the serum has been allowed to previously return to the abdomen.

The *pseudoplasms* of the young female urogenital organs offer no special indications of their own. Tumors of the ovaries were mostly found, on operation, to be dermoid cysts, and very rarely carcinoma or tuberculosis. The same and sarcoma are but rare occurrences in the vagina. Cysts have sometimes been found above the hymen, and soft *polypi* more frequently in the *urethra*. They are either easily recognized or mistaken for a simple prolapse of the urethral mucous membrane. They give rise to vesical tenesmus and dysuria sometimes, and also to (mostly slight) hemorrhages. Evulsion, chromic acid, the scissors, and the actual cautery, now and then two of these means combined, have been used. Ligature never succeeded in my hands. It would always cut through at once, produce some bleeding, and necessitate at once some other method.

(To be continued.)

INFANT HYGIENE.*

BY E. F. BRUSH, M.D.,

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It is related of Buddha that a young mother had lost an only child. Going to Buddha, she said, "Lord and Master, do you know what medicine will cure my boy?" Buddha replied, "I know some." She asked, "What medicine do you require?" He said, "I want a handful of mustard-seed." The woman promised to procure it for him, but Buddha continued, "I require some mustard-seed taken from a house where no son, husband, parent, or slave has died."† With maternal solicitude she hastened from house to house, and found mustard-seed everywhere, but no house where there had been no death. Thus are the laws of hygiene, like the mustard-seed, they can be found everywhere, but nowhere can we find the absence of disease and death. Many of the laws of hygiene are abused, and to-day children are hastened out of this world by too much science in their bringing up. The true value of hygiene is not so much to save life, which is the province of medicine, as to insure vigor and health in the survivors. We will not discuss the question as to whether it is always best to make strenuous efforts to prolong a life of sickness, disease, and deformity. No one can dispute the fact that many a child, commencing life with a vigorous constitution, has grown up to live a life of misery due to the neglect of some simple hygienic law. I am free to confess that infant hygiene is still in its infancy, and that there are only few laws that can be described as incontrovertible truths. Without attempting to go over the whole field of what we think we do know regarding hygiene, I will simply call your attention to a few of what may appear to be the petty affairs of childhood.

The baby to lead a life of perfect nutrition must have as a

* Read before the Jenkins Medical Association, October 30, 1890.

† Sakya Buddha, E. D. Root, N. Y., 1880, p. 168.

first condition its mother's nipple, without deformity, cracks, fissures, or sores. Hence a pregnant woman's nipple should receive treatment if necessary to prepare it for the infant's mouth. It has been my practice for many years to advise the prospective mother to procure two large nutmegs and have them hollowed out with a sharp penknife into a nipple-shaped cavity. These are worn over the nipples during the day-time for three or four months preceding parturition and kept in place by the corset; at night they are laid aside and left immersed in a solution of alum and brandy. This treatment relieves the nipples from pressure and allows them to protrude during the development which accompanies pregnancy. The natural oil of the nut keeps the nipple soft, while the alum and brandy harden the cuticle. In regard to keeping the nipples clean during lactation, I think it advisable sometimes to recommend washing them before the baby is nursed; for breasts that leak during the intervals of nursing, I recommend the nipples to be enveloped in a good-sized pad of oakum: this prevents the accumulation of dried and soured milk on the nipples. The condition of the mother's nipple seems to me often to account for some of the diseases of the infant buccal cavity, and when these diseases occur the state of the nipple should be taken into consideration.

The first bath of the infant is often the cause of future trouble. The water for this bath should be at the temperature of 95° or 100° F., and should always be measured by a thermometer. Of course, the ordinary clinical thermometer will do for this purpose. The use of soap in the first bath should be prohibited. In my experience, the white of a perfectly fresh egg cleans the infant body with less friction than the use of soap or grease. In regard to baths generally, sponges should be avoided, a flannel rag being the best for the rubbing process with soap. If sponges are used at all, it should only be for showering fresh water over the body; and, in regard to sponges, mothers and nurses should be warned against buying those nicely-bleached sponges which are sold in the streets. The selection of soap for infant-bathing is a very important matter, as many of the skin-diseases are undoubtedly caused by diseased animal fats. I have myself seen in these soaps

made of animal fats, nicely perfumed and lavishly advertised, small, microscopic splinters of bone. If the fat in the soap were diseased, these spiculæ would scratch the skin enough to produce inoculation. Soaps made from vegetable fats and not perfumed are the only ones that ought to be used for washing the infant. The white castile soap, if genuine, fulfils these indications. There is also a white soap made from cotton-seed oil, which is an American product, and which also seems to fulfil all the indications for a baby soap. When there is any doubt about the soap being composed of animal or vegetable fat, the doubt can be easily settled by making a solution of the soap in alcohol. The vegetable fats will be held in solution, while the animal fats will separate. I have no doubt that very many children are kept in a weakly condition from excessive bathing. A bath always lowers the temperature and likewise has a tendency to drive the blood from the surface, and becomes, at times, a very useful therapeutic measure. Of the two conditions, I think there is less danger in too little bathing than in too much. Very weak children should be kept presentably clean without subjecting them to the entire bath, which ought never to be given until they are two weeks old,—that is, babies less than two weeks old ought to be washed while lying on a flannel apron on the nurse's lap. Children that are old enough to be taken out for an airing should have their faces and hands washed with colder water than that used for the body bath.

The first clothing of an infant should consist of the flannel belly-band. This should be a fine, all-wool flannel, and if the cloth is cut on the bias, it will be more elastic and less apt to roll up. It should be applied neither too tightly nor yet too loosely; it can be worn for six months, and should be always reapplied in case of whooping-cough or bronchitis. Besides the belly-band, a one-piece dress of fine flannel, high neck and long sleeves, that laps over twice in front like a frock-coat, should be the only other garment for the first few weeks except the diapers. To dress a baby, it is often difficult to get its hand through a long sleeve. This can be overcome by enveloping the hand in a piece of paper shaped into a cone. Regarding the belly-band, I have said it can be dis-

carded in six months, but if a baby is not vigorous in every respect of the word, I think it is far safer for the belly-band to be worn for a year or more. We never get any expressions of opinion from babies, but from adults we get expressions of approval of the comforting effect of a wide abdominal support. The Canadian, during the excessively cold winters of his clime, gets great comfort from the application of several folds of a sash tied tightly round his abdomen, and finds it ameliorates greatly the pangs of both hunger and cold. A tight bandage around the waist will often prevent sea-sickness ; and the English ploughman claims to be saved from pains in the back and lumbago by the use of a wide webbing belt moderately tight around the abdomen. So I think it must add greatly to the comfort and support of the child to have a properly-applied belly-band. Of course, it must be clean, fine, flexible, and not inclined to roll up into a cord ; and a baby can cough more effectually, if for any reason it has to do so, if the abdomen is supported by a properly-applied bandage. Therefore I think the present tendency to abandon this belly-band altogether or leave it off after a few weeks is a mistake. Whenever the belly-band is finally laid aside, properly-fitting knit undershirts should take its place, and babies, when old enough to be sent out, either in the nurse's arms or the baby-carriage, should always be protected with long woollen stockings.

If the weather is propitious, the baby should be sent out daily after it is six weeks old. At this age the baby should always be carried. Baby-carriages are altogether too handy a contrivance. A young baby is put in, taken out of doors, and usually falls asleep ; having been habituated to sleep in a much warmer temperature than that out of doors, this alone is a source of danger to the young infant. The jolting of a baby-carriage is altogether too severe for a young child. Very often when the child is brought in it is still asleep, and for fear of disturbing it, it is allowed to complete its slumbers with its out-of-door clothes on. I make it a rule to sanction a baby-carriage only when a child is old enough to sit up and support its own back. An infant carried in a nurse's arms is far less apt to be chilled by the out-door air, as it gets con-

siderable warmth from the nurse's body, and the movements of the nurse in walking are gentle in comparison with the jolting of a baby-carriage. I find very often that these baby-carriages are used as cradles by families who, in sympathy with the prevailing fashion, have abandoned the rocking cradle. Now the back and forth motion of one of these carriages is surely a rather rough one for a small infant. I cannot convince myself that the rocking cradle is not a good thing; it is very soothing to the child and the motion cannot in any sense be called a jarring or disturbing action. With many children it is an absolute necessity that you have some means of quieting them so as to promote sleep. I have seen several families of late years who, by the advice of their physician, have not adopted the use of a rocking cradle for their infants, and have been obliged to use the carriage or some dummy sucking contrivance. I therefore continue to recommend the good old rocking cradle.

In regard to sucking the thumbs and fingers, which medical men are often consulted about, I have not been able to convince myself that for the first year of infant life any possible harm can come from this habit. Children prone to this habit are less fretful even during illness, and at all times it seems to be a source of solid comfort. After the child is old enough for the habit to appear unseemly, and in older children it has a tendency to make them stupid, the habit can be cured by the application of a plaster of Paris bandage, extending a few inches above and below the elbow, just sufficient to prevent the arm being bent so as to bring the fingers into the mouth. This method of curing the habit was recommended some years ago by Dr. Goodwillie, of New York, but in place of the plaster, he advised a stiff leather pad strapped to the elbow.

While speaking of the baby's arm, I may say a few words on the subject of vaccination. This important hygienic measure, if physicians are not more careful in regard to the operation, is liable to be brought into disrepute. In 1883, while I was occupying the position of attendant physician to the New York Infant Asylum, I examined the arms of one hundred and ninety-one children who had been vaccinated and deemed sufficiently protected. Of these I found only thirteen

with a well-defined pitted scar; only one had two well-defined, round, and pitted scars; fifty-one had no scars at all, although they had been vaccinated; the remainder had scars in various forms, shapes, and colors; no vaccination had been performed for three months previous to my examination, nevertheless, some of the arms were still crusted. The majority of the older scars contained cicatrices long, irregular, varying in dimensions from one inch to two inches; some had purple ridges in the centre, some red, others had cavities blue and red with puckering edges. Many of these children I vaccinated successfully, showing that, notwithstanding the severe and destructive processes that had previously taken place in the arm, they were not protected. A baby should be vaccinated at four months old, unless it is necessary to do so earlier. Physicians should see the child on the fourth and the eighth day after the operation, and satisfy themselves that there is a proper formation of a vaccine vesicle. I see constantly arms that are reported to have taken because sores have been generated by the operation which in no way simulate the vaccine vesicle.

The reason why I prefer to vaccinate a child at four months is that this is usually before dentition takes place. In regard to dentition I think it is an exceedingly dangerous thing for the physician to teach the mother that any severe attack of illness is due to teething, for she is very apt to delay the physician's attendance on her child that is ill during the dentition period. I have not been able, myself, to see wherein dentition has been the cause *per se* of any severe attack of illness. The most severe condition due to teething alone, that I have ever seen, is a slight ephemeral fever, a cough, or an eruption, not in any way making the child ill enough to require medical attention. Of course, the irritation that is sometimes caused in the gums will make more severe a disease due to some other cause, and the child, during dentition, that is at all affected by this normal process, is more apt to be attacked by the prevailing diseases.

Then it is necessary or advisable for the physician to give counsel regarding the nursery. It should be a room that receives sunlight, preferably in the morning; the walls should

be painted, not papered ; the floor also should be painted so as to cover all the cracks, and covered with a rug ; it should be lighted by candles and heated with wood if possible. The temperature at night should be sixty degrees, and during the day seventy degrees.

Thus I have considered a few points in the hygiene of infancy during the first year of life, simply attending to those rules which I do not find laid down explicitly in the books, and avoiding a repetition of those rules which we all know or ought to know. The rules for weaning are pretty well understood and do not call for any remark. All the water that children drink ought to be boiled, if for no other reason, to prevent the possibility of getting worms.

Several years ago my friend, Dr. Campbell, called attention to the necessity of taking more care of the hair of children. In scrofulous children the hair grows with exceeding rapidity, and, from its marked addition to the beauty of the child, the mother is very loath to cut it from the head of either boys or girls. Young children get long hair tangled during the night, which disturbs their sleep ; the combing out and arranging in curls and braids is a tedious process that makes the children irritable, and this accounts for many long-haired children appearing weak or puny. Boys' hair should always be kept short, and girls' hair also, if they show any signs of irritability or disturbed sleep. Children ought never to be allowed to go to bed hungry. Bread, of which children consume large quantities, should not be made with any of the baking powders now in such common use, for they are apt to get too many free chemical agents that cannot by any possible means be good for the stomach. The old-fashioned yeast-raised bread is decidedly the best. The child should have its breakfast as soon as it is dressed in the morning. Its stockings should always fit tightly and its shoes loosely. The toe-nails should be attended to regularly ; they ought always to be cut square and the corners never rounded down to allow the flesh to grow over, which is often the cause of ingrowing nails that are so painful and sometimes last through life.

With good air, water, food, and sleep, a healthy-constituted child will require from you very little direction as regards its

hygiene. We often see perfectly healthy and robust children reared under the worst possible sanitary conditions, and, on the other hand, we see puny and weakly children reared under what we regard as the highest and best laws of hygiene. The Spartans, in order to rear a vigorous and warlike race, had a law commanding all children to be brought as soon as born to the authorities, who, on finding any of a feeble organization or deformed, ordered them to be thrown into the Apothetæ on Mount Taygetus; the strong vigorous infant was returned to its parents with orders for its education, and thus by artificial selection a wonderfully vigorous race was produced. Contrary, however, to expectation, this race became nearly extinct in a few hundred years, because, with all their wisdom, some element which they deemed weak and unfit to live was absolutely necessary for the continuance of the race. We, ourselves, with all our boasted knowledge, run contrary to the absolute requirements of nature in some of our laws relating to hygiene. We find often that all that is required is some nearer approach to nature's own processes, uncomplicated with the refinements of civilization.

TYPHLITIS IN THE YOUNG, WITH NOTES OF THREE CASES.*

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A DEFINITION and a criticism of the word "typhlitis" may make clear the sense wherein it is used hereafter in the course of this paper. Being derived from τὸ τυφλόν, the name applied by both Aristotle and Galen to the intestinum cæcum, no doubt it should (and did, originally) signify inflammation of that part only of the bowel. But for years a wider use has prevailed, including by the term inflammation of the vermiform appendix, and of the tissues, peritoneal and non-peritoneal,

* Read before the Lincoln Medical Society, October 29, 1890.

immediately around the cæcum. And, as far as the latter parts are concerned, the name is quite definite enough; but if a separate term be considered absolutely necessary to indicate inflammation of the appendix alone (which, as we shall see later on, differs clinically from that of the cæcum alone), then I would venture to suggest, instead of the hybrid appendicitis, ecphysitis, from ἐκφυσις, which means an outgrowth (= ἀπόφυσις, which is used of other parts of the body), and has a French synonyme,—*ecphyse*.

Instead of any detailed sketch of the clinical history of typhlitis, perhaps the best plan will be to give the notes of the three cases here, with brief comments on each, and then to consider the pathology, diagnosis, prognosis, and treatment.

CASE I.—Joseph D., aged 14, a farm boy, had just got over a severe fall from a cart, when, on September 5, 1890, he seemed unwell, was languid, and ate little or nothing. On the 7th he sat by the fire all day, doubled up with pain in his abdomen. In the afternoon of the 8th he vomited freely, and was violently purged. Early in the morning of the 9th he passed a lot of blood by stool. When seen he complained of constant griping pain all over his body, though more especially in the right groin; he looked very ill (areolæ under his eyes, face pallid and anxious), though his pulse was only 100, and his temperature was normal. He was ordered an opium and starch enema, and was put on an opium and sulphuric acid mixture, and of course kept in bed and given only liquid food. On the 10th his pulse and temperature were both normal, his pain was less and his abdomen was less tender, and in the right groin could be felt a fulness, over which the tenderness persisted. He had no more sickness, nor did he ever again pass blood by stool. He wandered a little at night in the first week of his illness. On the 11th, and for some six days afterwards, there was clearly to be felt in the right iliac fossa a firm, circumscribed, dull, somewhat tender swelling, which ran vertically upward for three inches, just above the umbilicus, in the line of the ascending colon. It was hard, but with a kind of doughy hardness, which suggested at once impacted fæces. On the 15th of September he began to have diarrhœa; the stools were dark-brown, watery, and rather offensive, and varied in

number from three to six in the twenty-four hours. Occasionally he had a little pain from the straining in passing the motions, but he had lost almost all pain in his body, which was losing its tympanitic appearance, when on the 21st he had still more diarrhoea, his temperature (which had kept steadily at normal the whole of this attack before and since) rose to 101.4° , and he had a great deal of pain again over the abdomen. This, however, speedily passed off under the influence of more frequent doses of opium and acid mixture and of hot fomentations applied to the right groin, in putting on one of which my patient's mother managed to raise a very satisfactory blister. His temperature fell to normal again, his diarrhoea changed gradually into a healthy motion once or twice a day, and the swelling on the right side of the abdomen disappeared also gradually, and in three weeks from the commencement of his illness he was practically well.

The chief points in this case worth noticing seem to be the probability that either the boy's abdomen had received some injury during his accident, whereby the cæcum was actually inflamed, or that some slight cause set up the inflammation in a cæcum more or less full of fæcal matter. If he had been a few years younger, and the irritation greater, very possibly he would have come under Dr. Lydston's category of peritonitis due to typhlitis,* set up by some blow or strain. The vomiting never was a troublesome symptom, and it is interesting to mark how serviceable the diarrhoea was in carrying off the impacted fæces. In this case the main stress of the attack lay in the cæcum; no trace of the appendix could be found, though latterly the lad's abdomen was as flaccid as could be desired. The purging he underwent is not very common. I think in typhlitis, generally, obstinate constipation is the rule, and the trouble is to get the mass of fæces away from the place where it is causing inflammation.

The second of my cases is that of George H., aged 19, a groom, who on September 23 was seized with violent pain over the right side of his chest, and vomiting. On examination, his temperature was found to be 104° , his pulse 100, res-

* ARCHIVES OF PEDIATRICS, vol. vii., No. 80, p. 586.

piration 34, and there was a well-marked pleural rub to be heard over the lower half of his right lung. Six months before he had a sharp attack of pleurisy in the same situation. In a week's time, when he had almost lost the pain in the side, when his temperature had come down to normal and he seemed nearly convalescent, he was attacked by severe griping pains in the abdomen. These were worse after his food, though of course that was entirely liquid. The abdomen was distended with wind, very tender all over, particularly over the epigastric region, and his bowels were not open. In the night he found he could not pass his water, so, after a hot bath had been tried in vain, a No. 10 catheter was passed easily into the bladder. Next day an enema of soap and water was thrown gently into the bowel, and had the effect of bringing away some fæces and causing him to get rid of a lot of flatus. As the distention and tenderness of the abdomen disappeared, under the use of turpentine fomentations, a lump similar in all respects to that in the previous case was to be noticed in the right groin. The patient had been taking small doses of glycerin (one drachm in eight ounces, half an ounce *t. d. s.*), which certainly had some soothing effect on the bowel. This was changed for an opium and acid mixture; he was allowed no solid food; the bowels were kept open with enemata every other day; and gradually the pain, swelling, and tenderness over it decreased, and his bowels were moved naturally without the use of the enema. He quickly became convalescent, having been ill—including the pleurisy—a little over three weeks.

The late Dr. Fagge quoted a case wherein typhlitis followed directly on pleurisy of the right side, in his admirable textbook of medicine,* and we can easily imagine that the same cause which started the one trouble may also have affected the abdomen. There was a little doubt at one time whether internal piles may not have been responsible for his pain, the retention of urine, and the tympanitic belly, as he had some history of hemorrhage on passing his motions a year or two back. The seat of the trouble in this case, as in the last, was

* "Practice and Principles of Medicine," vol. ii. p. 173 (ed. 1886).

in the cæcum. It was somewhat curious that with all his pain, his temperature never rose (after the pleurisy had subsided) above 101° , and to that only on two occasions, although it was frequently taken and at all times of the day. During his worst paroxysms I used hypodermic injections of morphia. Both he and the previous patient received strict orders to be very careful to eat no hard peas or beans, or insufficiently-cooked rice, etc., and to be very careful to avoid swallowing the stones of fruit. The second patient managed to keep his bowels open easily by taking a little confection of senna every other morning. On this point also stress was laid.

For opportunities of seeing my *third* case, both ante and post mortem, and for the notes which follow, I have to express my very hearty thanks to Mr. J. H. Jenkins, of Lincoln, under whose care the case was.

Cecil K., aged six, had been a healthy child of rather a nervous temperament, readily turned sick and faint when suffering any pain, but had never previously had any intestinal trouble. Last year he had an attack of measles and bronchitis, but he made a good recovery.

Family History.—None of the family have had any intestinal complaints or peritonitis, as far as can be learned. Two brothers died suddenly, one in infancy the other when aged ten years.

On September 6 he was playing on the South Common, and eat a number of hawthorn-berries. Next day he appeared to be well and enjoyed plum tart for dinner. On September 8 he awoke feeling languid, complained of pain in his abdomen, and preferred to stop at home. September 9, pain continued, his bowels were moved, and sickness came on in the afternoon. September 10, the sickness was severe and constant, pain said to be in right groin; he had been seized with trembling and had turned very blue while the doctor was being sent for. When the patient was first seen, at 10 A.M., he was lying on his back, his legs straight down, he was quite conscious, looked very blanched, his pupils were dilated, his pulse small, thready, and very rapid, and his temperature was 102° . The abdominal walls were relaxed, and there was no tenderness over any but the right inguinal portion. A basin by his

side contained about six ounces of green vomit. He was ordered an effervescing mixture with bismuth, morphia, and dilute hydrocyanic acid, and belladonna and vaseline was applied to the tender part. At 8 P.M. the vomiting had ceased, the pulse was much fuller, and the temperature had fallen to 100.6°. He complained of the belladonna causing pain, so a linseed poultice was ordered instead. September 11, he had passed a restless night, was sick three times, but only brought up a small quantity. Temperature 102.4°; pulse very small. 1 P.M., Mr. Sympton* saw him in consultation, and gave him a copious injection of warm water while under the A.-C.-E. mixture. The milk diet was stopped, morphia and belladonna being given every hour, with a little brandy. Three-quarters of a Viking nutrient suppository was introduced into the rectum, and a large linseed poultice was applied to the abdomen. He was visited every two hours † till 9 P.M., when he was found to have expelled most of the water and the last suppository. His condition was so far from satisfactory that it was decided not to operate, and he was left for the night. At 2 A.M., September 12, he appeared more cheerful and inclined to play, turned over on his hands and knees, passed a quantity of flatus, and died. At a post-mortem examination, made fourteen hours after death, there were found many recent peritoneal adhesions and the abdominal cavity contained several ounces of pus. The vermiform appendix was bound to the small intestine and curved so as to form a letter S lying on its back. The free end of the appendix was discolored, thickened, and perforated by two openings of recent date, while the dependent curve contained an obstructing foreign body about the size and shape of a plum stone. The mucous membrane of the cæcum and of the appendix was healthy as far as the obstruction, behind which it was converted into a pyogenic membrane. The cæcum was found to contain moist soft fæces, and was probably not reached by the injection. The foreign body—which was in the appendix—turned out to be a laminated fæcal concretion.

* The father of the writer of this paper.

† I saw him at 3 P.M. with my father and Mr. Jenkins.

This was one of the not very uncommon kind where a foreign body in the appendix vermiformis ulcerates through and sets up general peritonitis. The cæcum seems to have been unaffected. The diagnosis was not difficult, and was aided by the history, even though no hawthorn-berries were found in the bowel. The main question was that of operative treatment. The chief reasons against opening the abdomen were that the parents strongly objected and would not have him moved to the hospital, and that the sanitary conditions were unfavorable. If he had been seen on the 9th, and an operation done then, very probably he would have recovered.

The *pathology* of typhlitis is that of an inflammation, either acute or chronic, beginning in the appendix or cæcum. If it is in the latter, it may spread in two directions, either to the peritoneum over the gut, and so cause diffused peritonitis, which is generally fatal, or it may involve the tissues lying behind the cæcum, and cause an extraperitoneal abscess. This, again, may communicate with the interior of the bowel, or it may not. If the inflammation commences in the appendix, it will probably spread to the peritoneal cavity, and give rise to either an intraperitoneal abscess or localized suppurative peritonitis, or to general peritonitis, as in the third case just quoted. The seat of the inflammation and its character differ in young and old patients, the former class generally producing the acute cases, the latter the chronic. The typhlitis in the young is more frequently set up by some hard lump of fæces, some foreign body, such as a fruit-stone or berry, lodging in that apparently useless and certainly dangerous part of the intestine, the appendix, and causing inflammation therein. This may cause, as said above, a localized peritonitis or a general peritonitis. And it must surely have occurred to most of us to notice how much more susceptible the peritoneum of a child is to various kinds of morbid influences than is that of an adult. Tubercle of the peritoneum, for instance, is very much more common in children. They have but little fat to cover the intestines, and blows unregarded or kept secret may frequently be the precursors of a so-called idiopathic peritonitis. In older patients typhlitis is generally due to large

masses of impacted fæces or indigestible food (such as beans, etc.) which are found in the cæcum, and which in other parts of the large intestine give rise to colitis. The swelling is partly due to the fæces present, partly to the inflammation of the intestinal wall and the parts around. These cases are more chronic, and more apt to produce an extraperitoneal abscess. Probably in many instances the mass of fæces or the foreign body has been for some time in the intestine, only wanting some exciting cause, the addition of irritating food, a blow or a strain to develop the lingering inflammation into a more active stage. Also there should be mention made here of the great danger which attends the development of tubercular or typhoid ulcers in the appendix, although they really do not come within the scope of this paper.

• The *diagnosis* of typhlitis is chiefly difficult, I think, in three stages of the attack. Early in an acute seizure there is probably a good deal of vomiting, with pain, tenderness, and tympanites all over the abdomen, and perhaps (as is usual) constipation. Here it simulates colic, whether due to the passage of a renal calculus, more probably to that of a gall-stone, as the situation of the chief pain often travels to the right groin, or the menstrual colic of females, when the pain is in the right iliac region. Also, in a case of this kind, the thought of typhoid fever should always be present. It may also appear like the starting of some intestinal obstruction. But with care, I think, after a very short time, the dulness and swelling in the position of the cæcum can generally be made out, and not infrequently the appendix can be felt to be swollen and hard. After a few hours, too, with appropriate medicine, the vomiting will cease, and as the distention of the abdomen lessens, the pain and tenderness become more localized. The temperature may be normal, and so differentiate from typhoid fever as in my first and second cases, although the patients are experiencing a surprising amount of pain compared with the little constitutional disturbance. Colic, it is often said, is relieved by pressure on the abdomen; with all the cases of typhlitis I remember the opposite result obtained. The next period of difficulty is when the patient is in the peritonitic stage, when his pulse is small and very rapid, his temperature

over one hundred degrees, his abdomen tympanitic, with some dulness in the flanks (if the effusion be general), obstinate constipation, and continual vomiting. Internal hernia, volvulus, and the like, suggest themselves, or perforation in the course of typhoid fever, or intestinal tuberculosis. Here again the pain, tenderness, and dulness, localized in part in the right groin, must be the chief guides, and possibly something may be gained, as in Mr. Jenkins's case, from the history. In the cases I have seen of typhlitis (none of which, save the last mentioned, were very severe) there has not been much trouble in deciding on the diagnosis. Where the inflammation of and around the cæcum has resulted in an abscess, inside or outside the peritoneum, communicating or not communicating with the gut, then the case becomes almost purely surgical, and I need not consider it here any further.

The prognosis of an ordinary attack of typhlitis is generally favorable. If they do not go on to peritonitis, or the formation of abscesses, these cases recover well and speedily, and a patient may even have several attacks, and then, whether as the result of some occlusion of the appendix or contraction of the cæcum, he may live altogether free for the rest of his life. On the other hand, these parts are liable to get fixed by adhesions in the first attack, and so to be open to the approach of foreign bodies, masses of hard fæces, etc., and to the influence of strains, and, according to a pathological law of ordinary inflammations, they present a weakness to attack, they are *loci minoris resistentiæ*.

Finally we come to the *treatment* of *typhlitis*.

In the earliest stage, absolute rest in bed, entirely liquid food, and a sedative mixture are necessities. I have generally used the liquor opii sedativus (B. P.), and occasionally joined with it some tincture of belladonna; ncpenthe has also proved very valuable on two or three occasions. If the pain be *very* severe, a hypodermic injection of morphine will relieve it for a time, and I have found it disappear "for good" after one injection. A mustard-leaf may be applied to the seat of pain, and followed up by a linseed poultice every two hours, or a hot fermentation or spongiopilin if the poultice be too heavy. A few drops of brandy or other spirit sprinkled on the flannel

on the side which will touch the skin often takes away pain successfully. It is well in two or three days' time to administer a fair-sized enema of soap and water, and unless the bowels are moved of themselves, this had better be repeated daily. With ordinary care it is quite harmless; it removes whatever may be in the sigmoid flexure, and it stimulates the colon to get rid of its contents, thus probably helping to empty the cæcum and withdrawing the cause of the inflammation. If the vomiting is troublesome, an effervescing mixture with hydrocyanic acid (as was given in Mr. Jenkins's case), or small doses of lime-water, will be useful. For diet, a little broth, or beef-tea, or arrow-root, or Benger's food, given every two hours in two- or three-ounce doses will suffice. Milk I regard as not very good food in these cases; unless it be freely diluted with soda-water or lime-water, it is too apt to become a mass of hard curds in the stomach, which may prove very irritating to the inflamed bowel. With the cessation of pain, the lessening of the lump in the groin, and the general improvement in the patient, of course an improved diet and some change in the medicine become needful. Bismuth, I have generally found to be serviceable in the later stage going on to convalescence. With the surgical varieties into which typhlitis may stray, I will not deal here, as I have no personal experience of them, nor will I touch on that debated question, removal of the appendix.

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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A. THE NOSE.

DISEASES OF THE NOSE.

1. *Rhinitis.*

DERIVATION.—*ῥίς*, the nose; *ίτης*.

DEFINITION.—Any inflammation, either acute or chronic, of the mucous membrane lining the nasal channels and their accessory cavities.

VARIETIES.—1. *Acute.*

- a. Acute coryza.
- b. Croupous rhinitis.
- c. Diphtheritic rhinitis.
- d. Hay fever.

2. *Chronic.*

- a. Simple chronic rhinitis.
 - (a) Rhinitis hypertrophica.
 - (b) Rhinitis atrophica.
 - (c) Purulent rhinitis of children.
- b. Grave chronic rhinitis.
 - (a) Specific rhinitis.
 - (b) Tubercular rhinitis.
 - (c) Lupus of the nose.

a. ACUTE CORYZA.

DERIVATION.—*κόρυζα*.

SYNONYMES.—

- | | |
|-------------------------------|---------------------------------------|
| 1. Simple rhinitis. | 7. Sniffles. |
| 2. Acute idiopathic rhinitis. | 8. Gravedo. |
| 3. Acute catarrhal rhinitis. | 9. Catarrhus narium. |
| 4. Cold in the head. | 10. Catarrhe nasal (<i>French</i>). |
| 5. Acute nasal catarrh. | 11. Schnupfen (<i>German</i>). |
| 6. Acute rhinorrhœa. | 12. Corizza (<i>Italian</i>). |

DEFINITION.—An acute inflammation of the Schneiderian mucous membrane and of the underlying erectile tissue; of rare occurrence in early infancy, but very common during childhood, which is characterized by tumefaction, warmth, and dryness of the tissues in the early stage, followed by a more or less copious mucous or muco-purulent discharge, which, together with the swelling of the mucous membrane, gives rise to an obstruction of the nasal cavities and an interference with nasal respiration which is more or less complete.

ETIOLOGY.—1. *Predisposing Causes.*

- (1) The scrofulous diathesis.
- (2) Congenital syphilis.
- (3) Chronic inflammation of nasal mucous membrane.
- (4) Poor ventilation.

2. *Exciting Causes.*

- (1) Action of cold and damp.
 - a. Sudden chilling of surface.
 - b. Wearing of soiled or wet diapers.
 - c. Wetting of feet.
 - d. Insufficient clothing.
 - e. Insufficient bed-clothing.
 - f. Sudden atmospheric changes.
- (2) Systemic infection.
 - a. Zymotic diseases.
 - a. Measles.
 - β. Typhus fever.
 - γ. Typhoid fever.
 - δ. Erysipelas.
 - ε. Infectious pharyngitis.
- (3) Irritation of nasal mucous membrane.
 - a. Inhalation of dust.
 - b. Inhalation of irritating vapors.
 - c. Foreign bodies in the nose.
 - d. Nasal neoplasms.
 - e. Reflex.
 - (a) Exposure of eyes to intense light.
 - (b) Gastro-intestinal derangements.

PATHOLOGY.—

Macroscopic.

1. *Nose.*—(1) Mucous membrane intensely congested; swollen; dry, slimy, glazed (*early stage*); bathed in profuse discharge (*later stage*); color, bluish-red, venous (*early stage*), rose-red (*later stage*); ulcerated (*occasionally*).
- (2) Turbinated bodies congested, swollen.
- (3) Lumen of anterior nares contracted.
2. *Pharynx.*—Mucous membrane inflamed, congested; vault filled with thick, inspissated mucus.
3. *Larynx.*—Mucous membrane reddened, inflamed.

SYMPTOMS.—

1. *Stage of Congestion.*

1. *Local.*—(1) *Nose.* a. Respiration noisy, obstructed (*usually unilaterally*).
- b. Discharge serous, scanty, clear, white, acrid, watery; *later*, mucous.
- c. Subjective sensations, burning, tickling, sense of fullness, frequent sneezing.
- (2) *Eyes.* Conjunctivæ congested; lachrymative.
2. *Constitutional.*—(1) Malaise general.
- (2) Headache frontal, dull, distressing.
- (3) Anorexia partial; interference with nursing; thirst slight.
- (4) Fever slight; chilly sensations (*occasional*).

2. *Stage of Inflammation.* }
1. *Local.*—(1) *Nose.* *a.* Respiration nasal; snoring, sniffing; difficult, obstructed.
b. Discharge muco-purulent; thick, viscid, turbid; yellow; odor peculiar, unpleasant, not fetid.
c. Anosmia partial or complete.
d. Nostrils inflamed, excoriated.
 (2) *Mouth.* *a.* Voice nasal, husky.
b. Lips excoriated.
c. Cough slight, hacking, gagging (*occasional*).
 - (3) *Eyes.* Conjunctivæ injected; smarting; photophobia; gluing of eyelashes.
 - (4) *Ears.* Hearing dull; earache (*occasional*); tinnitus aurium.
 2. *Constitutional.*—(1) Malaise pronounced.
 (2) Anorexia complete.
 (3) Vomiting (*occasional*), usually in morning.
 (4) Bowels constipated.
 (5) Fever smart, 101° to 102° F.
 (6) Headache frontal; severe.
 (7) Insomnia partial.
 (8) Convulsions (*occasional*).
3. *Stage of Resolution.* } Gradual disappearance of symptoms.

DURATION.—One week to ten days.

SEQUELÆ.—1. Chronic nasal catarrh.

2. Chronic middle-ear disease.

DIAGNOSIS.—1. From specific rhinitis.

Acute Coryza.

1. Exceedingly rare in early infancy.
2. Parental history non-specific.
3. Child presents a healthy appearance.
4. No emaciation.
5. Course rapid to resolution.
6. Febrile action slight at first; later, pronounced.
7. Discharge never absolutely purulent, never streaked with blood, and of a peculiar, non-fetid odor.
8. No tendency to the formation of nasal concretions.
9. Unaccompanied by nasal deformity.
10. No cutaneous eruption.

2. From hay fever (*vide*).

PROGNOSIS.—Good.

TREATMENT.—1. Abortive (*only before occurrence of congestion*).

(1) Hot stimulating drinks.

a. Whiskey punch.

(2) Fumigations with

a. Tincture of iodine.

(3) Nasal douches.

a. Warm solution of sodium chloride.

b. Astringent solutions.

Specific Rhinitis.

1. Common in early infancy, usually appearing between the first and fourth months.
2. Parental history specific.
3. Child presents the syphilitic cachexia.
4. Great emaciation.
5. Course rapid to ulceration.
6. Febrile action absent.
7. Discharge purulent, containing shreds of necrotic tissue; frequently blood-streaked, and extremely offensive.
8. Always formation of nasal concretions.
9. Early appearance of nasal deformity.
10. Characteristic cutaneous eruption.

2. Of the attack.

(1) *Hygienic.*

- a. Removal of known cause.
- b. Rest and quiet.
- c. Wearing of night-cap; flannel, close-fitting.
- d. Cold bathing of face daily.

(2) *Local.*

a. *External.*

- a. Unguents to bridge of nose, nostrils, and lip.

- (a) Cacao butter.
- (b) Cosmoline.
- (c) Cold cream.
- (d) Olive oil.
- (e) Almond oil.

β. Revulsives.

- (a) Mustard-water pediluvia.
- (b) Hot-water bags to forehead (*Bosworth*).
- (c) Weak tincture of iodine to angle of jaw.

b. *Internal.*

a. Nasal douches.

- (a) Solution of silver nitrate, five to ten grains to ounce.
- (b) Solution of alum, three to six grains to ounce.
- (c) Solution of tannin, five to ten grains to ounce.
- (d) Liquid cosmoline with two-per-cent. solution of cocaine.

β. Alkaline and antiseptic sprays.

- (a) Labarraque's solution, one part to four of water.
- (b) Hydrogen peroxide, one part to five of water.
- (c) Solution of menthol in almond oil or liquid vaseline, ten to twenty per cent.

γ. Snuffs.

- (a) Morphine.
- (b) Bismuth subnitrate.
- (c) Starch.
- (d) Cocaine.
- (e) Soda bicarbonate.
- (f) Powdered acacia.

δ. Inhalations of

- (a) Warm vapor of camphor.
- (b) Warm vapor of ammonium muriate.
- (c) Warm vapor of oil of pine.
- (d) Warm vapor of turpentine.
- (e) Warm vapor of balsam of tolu.
- (f) Warm vapor of carbolic acid.
- (g) Warm vapor of tincture of iodine.
- (h) Warm vapor of tincture of benzoin.

(3) *Constitutional.*a. *To allay fever.*

α. Tincture of aconite root.

β. Sweet spirits of nitre.

γ. Calomel.

Soda bicarbonate. } Small dose.

b. *Sedatives.*α. Potassium bromide, five to ten grains
t. d.β. Benzoate of sodium, one-fifth grain
each hour.γ. Syrup of ipecac, emetic dose (*in severe case*).3. *Surgical (under cocaine or chloroform anæsthesia).*

(1) Removal of foreign bodies } by Gross's ear-

(2) Removal of necrosed bone } spoon.

(3) Removal of nasal neoplasms by Jarvis's snare.

DIET.—Light; milk, milk and bread; broths; corn-starch; spoon-feeding (*where nursing is impossible*).FORMULÆ.—1. Alkaline spray (*Leffert*).

R Acid. carbolicæ, ℥i;
Sodii boratis,
Sodii bicarbonat., āā ℥i;
Glycerini,
Aquæ rosæ, āā ℥i;
Aquæ, q. s. ad Œi. M.

S.—Use in the atomizer.

2. Alkaline, antiseptic solution (*Seiler*).

R Sodii bicarb., ℥viii;
Sodii biborat., ℥viii;
Sodii benzoat.,
Sodii salicylat., āā gr. xx;
Eucalyptol.,
Thymol., āā gr. x;
Menthol., gr. v;
Ol. gaultheriæ, gtt. vi;
Glycerini, ℥viii ss;
Alcoholis, ℥ii;
Aquæ, q. s. ad Œxvi. M.

S.—Spray nostrils (*in child*), or swab (*in infants*), three or four times daily.

b. CROUPOUS RHINITIS.

(*Described by Bresgen, Gluck, Hartmann, Moldenhauer, Potter, Ryerson, Seifert.*)DERIVATION.—*Heópan* (Anglo-Saxon) (*Billings*).

SYNONYMES.—Pseudo-membranous coryza.

DEFINITION.—An acute, specific, non-contagious inflammation of the lining mucous membrane of the nose—a *local manifestation of a general disease as yet unnamed*—due to the lodgement thereupon of the specific germ of that disease, and characterized by the deposit upon the external surface of the mucous membrane of a fibrinous exudation or false membrane.VARIETIES.—1. Idiopathic (*very rare*). Tendency of membrane to spread.2. Traumatic (*common*). No tendency of membrane to spread.(1) From use of galvano-cautery (*Bresgen*).(2) From insufflation of impure water (*Hering and Schmithinson*).

(3) Following operations upon nose.

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ETIOLOGY.—1. *Predisposing causes.*

(1) Excess of fibrin in the blood.

2. *Exciting causes.*

(1) Deposit of specific germ.

PATHOLOGY.—

1. *Macroscopic.*

1. *Nose.*—(1) Mucous membrane congested, hyperæmic; bathed in serous discharge (*first stage*), covered with false membrane (*later*).
- (2) Turbinated tissues congested, hyperæmic (*first stage*), covered with membranous deposit (*later*).
- (3) False membrane clean, clear, soft, friable, non-adherent.
- Color.* White.
- Seat.*

a. Lower turbinated bone.	} Mild cases.
b. Middle turbinated bone.	
c. Septum of nose.	} Aggravated cases.
d. Upper pharynx.	
2. *Eyes.*—Eyelids covered with membranous deposit (*occasional*).
3. *Pharynx.*—Mucous membrane reddened, congested, covered with patches of exudation (*occasional*).

2. *Microscopic.*

1. *Nose.*—(1) Mucous membrane; proliferation of epithelial cells; exudation of blood corpuscles; injection of capillaries.
- (2) False membrane; composed of
 - a. Basement of fibrin, fibrillar and granular.
 - b. Blood corpuscles, white and red.
 - c. Epithelial cells (*slightly undergoing granular degeneration and coagulation necrosis*).

SYMPTOMS.—

1. *Stage of Congestion. Duration, two days.*

1. *Local.*—(1) *Nose.*
 - a. Respiration partially obstructed, accelerated.
 - b. Discharge profuse, watery.
 - c. Anosmia partial.
 - d. Sneezing frequent.
2. *Constitutional.*—(1) Malaise general; decided depression of spirits.
- (2) Febrile action sharp; 102° to 103° F.; initiatory chill or chilly sensation.
- (3) Pain in back and bones; headache.
- (4) Anorexia complete.

2. *Stage of Membranous Formation. Duration, seven to ten days.*

1. *Local.*—(1) *Nose.*
 - a. Respiration completely obstructed, oral, hurried.
 - b. Discharge muco-purulent; never fetid; containing fragments of false membrane.
 - c. Anosmia complete.
 - d. Formation of false membrane; tendency to return if removed.
 - e. Deformity; apparent broadening of nasal bridge.
- (2) *Mouth.* Open; expression vacant; cough, laryngeal (*occasional*).
- (3) *Glands at angle of jaw.* Slightly swollen.
2. *Constitutional.*—(1) Malaise pronounced.
- (2) Fever slight, 99° to 100° F.
- (3) Anorexia complete.
- (4) Pulse usually strong and hard.

8. *Stage of Resolution.* Duration, two to three weeks. } Gradual decline of symptoms.

COMPLICATIONS — 1. Croupous pharyngitis.
2. Simple follicular tonsillitis.
3. Laryngitis.

DURATION.—Three to five weeks.

SEQUELÆ.—Chronic catarrh.

DIAGNOSIS.—From diphtheritic rhinitis.

Croupous Rhinitis.

1. Rarely attacks adults.
2. Of a sthenic type.
3. Febrile action marked.
4. Pulse usually strong and hard.
5. Constitutional involvement slight.
6. Slight enlargement of glands at angle of jaw.
7. Nasal discharge odorless and containing fragments of false membrane.
8. Membranous formation clean, of a whitish color, soft, friable, non-adherent, leaving mucous membrane beneath intact.
9. False membrane removed in small granular masses, and shows no evidence of necrotic processes.
10. Accompanied by membranous deposits upon the eyelids, which may be easily removed.
11. Complications and sequelæ slight.
12. Never followed by local paralysis.
13. Rarely fatal.

Diphtheritic Rhinitis.

1. Frequently attacks adults.
2. Of an adynamic type.
3. Fever usually slight.
4. Pulse weak, rapid, and full.
5. Constitutional involvement profound.
6. Great enlargement of glands at angle of jaw.
7. Nasal discharge of a sweetish, unpleasant odor, and never containing fragments of false membrane.
8. Membranous formation dirty, of an ashy or gray color, tough, dense, adherent, leaving mucous membrane beneath torn and abraded.
9. False membrane removed in one continuous piece, and shows marked evidences of necrosis.
10. Accompanied by membranous deposits upon the eyelids, which are impossible to remove.
11. Complications and sequelæ grave.
12. Frequently followed by paralysis of Eustachian tube and other local paralyses.
13. Frequently fatal.

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) Removal of false membrane.

a. By cotton pledget on probe.

(2) *Applications to nasal mucous membrane.*

a. Cocaine.

b. Tincture ferri chloridi.

c. Persulphate of iron (*officinal*).

(3) *Sprays of*

a. Carbolic acid } well diluted (*J. L. Smith*).

b. Salicylic acid }

(4) *Warm inhalations* (*Moldenhauer*).

(5) *Insufflations.*

a. Iodoform (*Bresgen, Hartmann*).

2. *Constitutional.*—(1) *Chalybeates.*

a. Tincture of the chloride of iron.

(2) *Febrifuges.*

- a. Aconite.
- b. Sweet spirits of nitre.
- c. Quinine.

(3) *Laxatives.*

- a. Calomel, one grain every three or four hours.
- b. Castor oil.
- c. Syrup of rhubarb.

DIET.—Restricted; milk broths; toast.

FORMULÆ.—1. Emulsion of castor oil (*Philadelphia Hospital Pharmacopœia*).

R Olei resini, ʒii;
Olei sassafras, gtt. xii;
Pulv. acaciæ, q. s.;
Aquæ, q. s. ad ʒiii. M.

S.—Each tablespoonful equals castor oil ʒii.

2. Salicylic acid spray (*J. Lewis Smith*).

R Acid. salicylic., ʒss;
Glycerini, ʒii;
Aquæ calcis, ʒx-xii. M.
S.—Use in atomizer.

c. DIPHTHERITIC RHINITIS.

DERIVATION.—*διφθέρα*, leather.

SYNONYMS.—1. Nasal diphtheria.

2. Coryza maligna.

3. Morbid snuffles (*Underwood*).

DEFINITION.—An acute, specific, contagious inflammation of the lining mucous membrane of the nose—a local manifestation of the general disease diphtheria—due to the deposit thereon of the specific germ of diphtheria, and characterized by the development in the nasal cavities of a false membrane which not only lies upon the surface, but also infiltrates the tissues of the mucous membrane down to its deeper layers.

VARIETIES.—1. Primary (*grave*).

2. Secondary (*mild*).

ETIOLOGY.—1. *Predisposing causes.*

(1) Any abrasion of nasal mucous membrane.

2. *Exciting causes.*

(1) Deposit of the specific germ (*Klebs-Löffler bacillus?*).

PATHOLOGY.—

1. *Macroscopic.*

- 1. *Nose.*—(1) Mucous membrane congested, hyperæmic, œdematous, infiltrated (*especially in lower nasal cavities*), bathed in serous exudate (*first stage*), covered with false membrane (*later*), abraded in spots.
- (2) False membrane dirty, tough, dense, at times solid, adherent, with patches of coagulation necrosis.
- Color.* Ashy or gray.
- Seat.* a. Lower nasal cavities.
- b. Nasal walls.
- c. Septum.
- 2. *Pharynx.*—(1) Mucous membrane reddened, congested, containing diphtheritic deposits (*vide Diphtheritic Pharyngitis*).
- (2) Uvula elongated.
- (3) Tonsils swollen slightly.
- 3. *Mouth.*—Mucous membrane reddened, congested, œdematous, containing diphtheritic deposits.
- 4. *Eyes.*—Diphtheritic deposits upon lids, tough, adherent.

2. *Microscopic.* {
1. *Nose.*—(1) Mucous membrane; injection of capillaries; rapid cell proliferation.
 - (2) False membrane; composed of
 - a. Basement of fibrin.
 - b. Blood corpuscles, colored and colorless.
 - c. Epithelial cells, shrivelled, granular *débris*, markedly necrosed.

SYMPTOMS.—

1. *Stage of Catarrh.* {
1. *Local.*—(1) *Nose.* a. Respiration difficult, noisy, rapid.
 - b. Discharge serous, profuse.
 - (2) *Mouth.* Increased salivation.
 - (3) *Pharynx.* Deglutition painful, difficult.
 - (4) *Glands at angle of jaw.* Great and rapid swelling (*rarely suppurate*).
 2. *Constitutional.*—(1) Malaise general.
 - (2) Fever slight.
 - (3) Drowsiness, tendency to sleep.
2. *Stage of Membranous Formation.* {
1. *Local.*—(1) *Nose.* a. Respiration completely obstructed, oral.
 - b. Discharge flocculent, profuse, never containing fragments of false membrane; odor sweetish, unpleasant.
 - c. Formation of false membrane.
 - d. Epistaxis occasional.
 - (2) *Mouth.* a. Open; expression anxious.
 - b. Breath of a sweetish, unpleasant odor.
 - c. Diphtheritic deposits on cheeks and gums.
 - d. Voice nasal.
 - (3) *Eyes.* a. Conjunctivæ injected.
 - b. Lachrymation.
 - (4) *Ears.* a. Tinnitus aurium.
 - b. Deafness slight.
 2. *Constitutional.*—(1) Malaise general; marked prostration.
 - (2) Fever slight.
 - (3) Pulse weak, rapid, full.
 - (4) Drowsiness often profound.
3. *Stage of Resolution.* {
1. *Local.*—*Nose.* Discharge contains fragments of macerated false membrane.
 2. *Constitutional.*—(1) Gradual amelioration of symptoms.
 - (2) Tendency to recurrent attacks.

DURATION.—One to four weeks.

SEQUELÆ.—1. *Nasal.*—Chronic nasal catarrh.

2. *Aural.*—(1) Deafness.

(2) Perforation of ear-drum.

(3) Caries of mastoid bone.

(4) Paralysis of Eustachian tube.

3. *Ocular.*—(1) Perforation of cornea.

(2) Prolapse of iris.

(3) Blindness.

4. *Pharyngeal.*—Paralysis of pharyngeal muscles.

DIAGNOSIS.—From croupous rhinitis (*vide*).

PROGNOSIS.—Very anxious.

TREATMENT.—1. *Hygienic.*—(1) Isolation (*complete*).

(2) Avoidance of exposure to cold.

(3) Prevention of undue tendency to sleep.

2. *Local.* (1) *To enlarged cervical glands.*
 - a. Cold—ice-bag.
- (2) *To the eyes.*
 - a. Cold—compresses, water.
 - b. Saturated solution boracic acid, few drops.
- (3) *To the nose.*
 - a. *Cleansing and disinfectant solutions every hour.*
 - a. Spray of carbolic acid, 2-4 gr. to 3i.
 - β. Spray of aqua calcis.
 - γ. Spray of water and glycerine.
 - b. *To arrest formation of membrane.*
 - a. Carbolic acid (*pure*).
 - β. Solution of chloride of sodium 1-50-100.
 - γ. Solution of soda bicarb.
 - δ. Solution of borax.
 - ε. Solution of boric acid (*saturated*).
 - θ. Solution of bichloride of mercury 1-5000-10,000.
3. *Constitutional.*—1. Tincture of chloride of iron, gtt. 5-15, every hour.
2. Stimulants (*as needed*).
3. *For fever.*
 - a. Frequent sponging and bathing.
 - b. Quinine. } *Large*
 - c. Sodium salicylate. } *doses.*

FORMULÆ.—1. *Lime-water.*

Take a piece of unslaked lime about the size of a walnut, put it in an earthen vessel, pour on it two quarts of filtered water, stirring well. As the water is used, keep the vessel full by adding more filtered water.

d. HAY FEVER.

SYNONYMES.—

- | | |
|--|---|
| 1. Hay cold. | 12. Autumnal catarrh (<i>Wyman</i>). |
| 2. June cold. | 13. Catarrhus æstivus (<i>Bostock</i>). |
| 3. Peach cold. | 14. Pollen catarrh. |
| 4. Rose cold. | 15. Pruritic catarrh. |
| 5. Idiosyncratic coryza. | 16. Summer catarrh. |
| 6. Periodic coryza. | 17. Annual rhino-bronchitis (<i>Lefflaive</i>). |
| 7. Coryza vasomotoria periodica (<i>J. Mackenzie</i>). | 18. Catarrhe d'été } (<i>French</i> .) |
| 8. Hay asthma. | 19. Catarrhe de foin } |
| 9. Hyperæsthetic rhinitis (<i>McBride</i>). | 20. Asma dei mietitori (<i>Italian</i>). |
| 10. Vasomotor rhinitis (<i>Hertzog</i>). | 21. Fruhsommer-catarrh } (<i>German</i>). |
| 11. Rhinitis sympathetica. | 22. Heu-asthma } |

DEFINITION.—A neurotic, periodic, often hereditary disease, frequently met with in children, and rather more commonly among males, manifesting itself as an affection of the terminal nerve filaments of the nasal and upper air-passages, or of the centres connected with these filaments, recurring annually, and characterized by symptoms of severe nasal vaso-motor disturbance together with irritation, redness, and catarrh of the mucous membranes of the eyes, nose, throat, and bronchi, and running a course of varying intensity and duration.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Neurotic temperament.
- (2) Hereditary.
- (3) Environment.
- (4) Unhealthy condition of respiratory mucous membrane.
- (5) Age, under 30 years.
- (6) Morbid growths or hypertrophic enlargements of normal tissues in nose.

2. *Exciting causes.*

- (1) Season, May to September (*inclusive*).
- (2) Mechanical atmospheric irritants.
 - a. Inorganic dust.
 - b. Pollen of plants and trees.
- (3) Sunlight.
- (4) Heat.
- (5) Over-exertion.
- (6) Indigestion.
- (7) Asthenia (cases cured by arsenic).

PATHOLOGY.—Respiratory mucous membrane congested, swollen. Nasal mucous membrane swollen, blue-gray color, opalescent, covered with slightly viscid watery serum. (*No constant pathological lesions*).

SYMPTOMS.—

- | | | |
|---|---|---|
| 1. <i>Prodromal Stage</i>
(<i>often absent</i>).
<i>Duration</i> , one
to two weeks. | { | 1. Nervous irritability.
2. Feeling of lassitude.
3. Alternating sensations of heat and cold. |
| 2. <i>Stage of Coryza.</i>
<i>Duration</i> , ten
days to two
weeks. | { | 1. <i>Local.</i> —(1) <i>Nose.</i> a. Obstruction of nostrils, short, paroxysmal.
b. Sneezing, frequent, violent, paroxysmal.
c. Anosmia, partial or complete.
d. Discharge, serous, profuse acrid.
(2) <i>Mouth.</i> a. Itching of roof.
b. Uneasy sensations in Eustachian tube.
c. Sense of taste, lost.
d. Cough, slight, dry.
(3) <i>Eyes.</i> a. Paroxysmally irritated, suffused, photophobia (<i>occasional</i>), epiphora.
b. Itching of lids at inner canthus.
(4) <i>Face.</i> Red, swollen (<i>in morning</i>).
(5) <i>Ears.</i> Hearing dull.
(6) <i>Skin.</i> a. Itching of scalp, back, and chest.
b. Tendency to excoriations.
2. <i>Constitutional.</i> —(1) Malaise general; marked depression of spirits.
(2) Anorexia partial or complete.
(3) Pulse quickened. |
| 3. <i>Stage of Asthma.</i>
<i>Duration</i> , ten
days to two
weeks. | { | 1. Cough short, harassing, worse in dry weather and at night.
2. Expectoration slight, transparent, glairy, mucous.
3. Attacks of asthma nocturnal. |
| 4. <i>Stage of Decline.</i>
<i>Duration</i> , two
to three weeks. | } | Gradual disappearance of all symptoms. |

DURATION.—Six to eight weeks.

DIAGNOSIS.—From acute coryza.

Hay Fever.

1. Invasion and disappearance of symptoms both very acute.
2. Attacks of violent paroxysmal sneezing with profuse watery discharge throughout the whole course of the disease.
3. Stage of serous nasal discharge protracted, extending over weeks.
4. Nasal discharge serous throughout.
5. Nasal mucous membrane swollen, bluish-gray in color, opalescent, and covered with a slightly viscid, watery serum.
6. Eye symptoms common and pronounced,—suffusion, photophobia, epiphora.
7. Febrile action slight or absent.
8. Nocturnal asthmatic attacks common.
9. Course prolonged over six or eight weeks.
10. Prognosis bad as regards cure.

PROGNOSIS.—1. Good, as regards life.

2. Bad, as regards complete cure.

TREATMENT.—1. *Prophylactic*.—(1) Removal of any existing nasal lesion.
(2) Annual change of residence to proper resort.

Hay-Fever Resorts.

1. The White Mountains.
 - (1) Bethlehem.
 - (2) Jefferson.
 - (3) Gorham.
 - (4) The Glen.
 - (5) Twin Mountain House.
2. The Catskills.
3. The Green Mountains.
4. The Adirondacks.
5. Cresson, Pa.
6. Deer Park, Md.
7. Isles of Shoals.
8. Ocean voyage.
2. *Of the attack*.
 1. *Local*.—(1) *Nose*. a. Solution of cocaine, two per cent. (*with care*).
 - (2) *Skin*. a. Daily dry friction.
 - b. Spinal ice-bag (*Kinnear*).
 - c. Wearing of flannel.
 - d. Warm bathing (*occasional*).
 2. *Constitutional*.—(1) Seclusion in dark room.
 - (2) Quinine, full doses.
 - (3) Arsenic, throughout whole course.
 - (4) Valerianate of zinc (*Mackenzie*).

DIET.—Nourishing.

Acute Coryza.

1. Invasion and decline not so sudden.
2. Intense sneezing, lasts but a few days, and does not occur in violent paroxysms.
3. Stage of serous nasal discharge of short duration, lasting but a few days.
4. Nasal discharge serous at first, later muco-purulent, yellow, and viscid.
5. Nasal mucous membrane intensely congested, rose-colored, and bathed in profuse mucous or muco-purulent discharge.
6. Eye symptoms slight,—injection of conjunctivæ, occasional lachrymation.
7. Febrile action pronounced, 101° to 102° F.
8. No asthmatic attacks.
9. Course short, one week to ten days.
10. Prognosis good in every respect.

(To be continued.)

Clinical Memoranda.

A CASE OF RECOVERY FOLLOWING PERFORATING PERITONITIS.

BY M. P. HATFIELD, M.D.,

Chicago.

APROPOS of Dr. Lydston's recent article on "Early Operations in Peritonitis," the following case is submitted, whether for or against his theories each must decide for himself.

Carrie K., aged six years, according to her mother's account, has always been a delicate child, with a capricious appetite since infancy. The latter was remarkable only for the failure of the umbilical stump to properly heal until after her second year. Later she complained of frequent abdominal tenderness, and has always been unwilling to be rubbed or touched about the umbilicus, but has never been ill enough to require a physician until about the middle of December, 1889. She was then taken with a sudden and violent pain, located in the region of the bladder. Warm poultices were applied, and the next morning the mother claims to have found blood in the urine and pus flowing from the vagina. The physician, who was summoned in consequence, made the exceedingly comprehensive diagnosis of combined diphtheria, pneumonia, peritonitis, and typhoid fever. As might have been expected, things went from bad to worse, until December 24, when the first physician was dismissed, and Dr. C. A. Storey called. He found the child with a temperature of $104\frac{1}{2}^{\circ}$, respiration 50, and the pulse too rapid to be counted; abdomen tympanitic and very sensitive. For a variety of reasons it was found impossible to keep an accurate history of the case, but Dr. Storey thinks that, about December 31, a mild attack of meningitis still further complicated matters, but was easily controlled by the use of ergot and bromide of potash and counter-irritation. No discharge of pus from the genitals was noticed by Dr. Storey until ten or twelve days after he assumed charge of the case, but pyuria and dysuria were constant from the first. Four weeks after the initial attack the umbilicus was

noticed to be discolored, and a few hours later spontaneously discharged several ounces of laudable pus.

At this time, January 16, the case was first seen by the writer in consultation with Dr. Storey. The child was greatly emaciated, but unusually, almost abnormally, bright. Temperature 100° ; pulse 110; respiration normal; abdomen tympanitic, except in left hypochondriac, which was dull and gave an ill-defined impression of fluctuation. In the exact centre of the umbilicus was an opening, just large enough to admit an ordinary silver probe, and through this pus could be made to ooze *guttatim*. The next morning was set for an exploratory operation to locate the pus-sack, if possible, but intercurrent "grip," which attacked indiscriminately both parents and physicians, postponed everything for ten days. During this time the umbilical opening discharged intermittently, sometimes without poulticing, and sometimes being continuously poulticed for a day or more at a time. Once during this ten days the mother noticed the inner surfaces of the child's thighs smeared with pus, the umbilical opening having ceased entirely to discharge for the previous twenty-four hours. Dysuria was constant, and the child continued to waste, although kept on cod-liver oil, hypophosphites, and a liberal diet.

January 28.—The child was found looking better than at the former visit. Appetite had improved, temperature was normal, and pulse only slightly quickened. Chloroform was administered to full anæsthesia, and the umbilical opening enlarged sufficiently to admit a small flexible catheter. This entered at first an apparently blind pouch about one inch in depth, lying superficially and directly to the left of the umbilicus, but at last, by careful manipulation, an opening was discovered leading directly backward from the external opening for a couple of inches, then dipping downward and then upward again, until at a distance of *nine* inches from the external opening a pus cavity was entered. Into this a large soft rubber catheter was passed and a copious flow of cheesy pus ensued. After all that could be obtained in this way (six to eight ounces) was discharged, a rubber drainage-tube was substituted, and the cavity washed out with a warm boracic-acid solution until the washings returned clear. Then a drainage-tube was secured in place, the wound dressed with iodoform gauze and oakum, and the child returned to bed after a hurried vaginal examination, which failed to reveal any evidence of pus having been discharged by that exit. The child was now placed in the care of an excellent trained nurse, and at no time after the operation was there an appre-

ciable rise in temperature. Wasting ceased with the proper cleansing of the pus-sack, and recovery was without a setback except that, on March 14, Carrie was noticed to drag the right leg. Possibly partial paralysis existed before, but it was not noted until the little girl attempted to sit up for the first time on the date given just above.

March 27.—The discharge of pus entirely ceased, and the wound closed by granulation. The child was seen a few weeks since, and is apparently in better health than ever before in her life.

Remarks.—The etiology of the case is not as exact as I could wish, as the mother gives different accounts to the different physicians in attendance. To the writer she maintained a history of abdominal tenderness since infancy, while her account to Dr. Storey was that there had never been tenderness before December 6, 1889, when the child fell, while being chased by her playmates, and struck her abdomen against a stone. In either event, it was clearly a case of acute peritonitis with the unusual result of spontaneous perforation and recovery. Lydston quotes eleven cases from Ganderon in which this termination happened. In eight of these recovery took place, whether with or without antiseptic treatment is not stated. Rehn (*Handbuch der Kinderkrankheiten*, vol. iv. p. 251) mentions three additional, but adds, "Die prognosis ist demnach eine nahe zu absolut ungünstig."

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, December 11, 1890.

L. EMMETT HOLT, M.D., *Chairman*; WALTER LESTER CARR, M.D., *Secretary*.

CASE OF SPINA BIFIDA.

Dr. H. D. Chapin said the patient which he had intended to present to the section had been operated upon that day, and he did not feel justified in bringing it out. The baby was four months old; at birth had a small tumor in the lumbo-sacral region about the size of a hickory-nut, according to the mother's description, which went on increasing until, when

the speaker saw the patient, it had attained the size of an orange. It was tense, and at the median line seemed very thin, and about ready to burst. It was of heart shape. It appeared as if the laminæ of three or four vertebræ were absent. He tapped the tumor, drew off about half an ounce of fluid, strapped it, and repeated this operation about five times. The temperature having risen day before yesterday, it became evident some inflammatory action had started in the sack, and he had Dr. Abbe see the patient with him, and they decided to try excision of the sack, and to bring the periosteum over the laminæ. The operation was undertaken this afternoon; but on opening into the sack the filaments of the cauda equinæ were found interwoven with it, which made excision impossible. There had been evidence of paraplegia, both motion and sensation being affected. It was not likely the baby would live longer than a few days. Should it recover, the tumor would probably refill. Had the nervous elements not been arranged in the sack in the manner they were, he thought the radical operation could have been completed and given a curative result.

The chairman thought there was little likelihood of success from an operation when paraplegia was present, for in such cases some of the nervous elements were usually involved in the sack. Under such circumstances he had never seen a successful operation, but had seen two where paraplegia was not present. In the two, no untoward symptoms whatever followed the operation.

FCETAL MONSTROSITY.

Dr. William Perry Watson presented a foetal monstrosity, the chief interest of which was, he said, that it was the second of the kind from the same mother. She had been attended on both occasions by Dr. J. A. Exton, of Arlington, New Jersey, to whom he was indebted for this specimen. The first labor took place fourteen months ago, the second very recently. The child's body and face seemed perfect, but there was absence of the bones of the cranium and of the brain. The appearance was not unlike that of a monkey. The parents were Swedes, and have three living children, aged four, six, and eight years, and all well developed and healthy. In the first pregnancy the mother visited Central Park very often, and was very much interested in the antics of the monkeys. After the first child was born she attributed the monstrosity to mental impression on seeing the monkeys. During her second pregnancy she stayed away from New York entirely, but doubtless

was in fear of a birth similar to the first, and it proved to be so. Both pregnancies went to full term. It was said this baby breathed at birth, but Doctor Exton did not arrive until shortly after its expulsion, and it was then dead.

RECOVERY FROM OBSCURE CEREBRAL SYMPTOMS POINTING TO TUMOR OF THE BRAIN.

The chairman presented a little girl, of four years, who had been under observation for the past nine months. The child had received a fall backward down seven or eight steps, striking upon the occiput. No symptoms except a local swelling followed immediately upon the injury. In the course of the next two or three weeks she was noticed to be walking peculiarly, and stumbled occasionally. These symptoms steadily increased until she was brought to the clinic, in March,—about a month after the fall. At this time well-marked ataxia was found in the lower extremities. The gait was unsteady, equilibrium was maintained with some difficulty, but no loss of power was made out. The mother stated that there had been difficulty noticed in the child's feeding herself, this, before, having been easily done. On the examination, ataxia in the movements of the upper extremities could not be positively made out.

The speech was unnaturally slow and measured. The only other symptoms discovered was a very much increased knee-jerk, and, in fact, all reflexors were heightened.

There had been no headache complained of. There were no evidences of localized paralysis anywhere. No signs of injury present upon examination of the occipital region.

The child was then admitted to the Babies' Hospital, where she remained under close observation for over two months. There was at no time any elevation of temperature; no vomiting; occasional attacks of headache of no great severity. The ataxia steadily increased until locomotion without assistance was almost impossible. Ataxia was undoubted in the hands, but much less marked. Her mental condition was not altered, except that she became somewhat peevish and very irritable, having previously been reported as very sweet tempered. The general health was not noticeably impaired. There was no vomiting; the bowels were somewhat constipated. Two ophthalmoscopic examinations were made, with negative results. The case was seen by three prominent neurologists, all of whom agreed that the symptoms pointed to organic lesion in the cerebellum, which, it was thought, might be either a rapidly-growing tumor following the injury, an abscess, or a small

laceration. Hemorrhage was thought to be excluded by the fact of the gradual development of the symptoms, none being seen until two or three weeks after the injury. The progress of the case was a surprise to all who had seen it, having increased steadily through March, April, and May, and then remained nearly stationary for about six weeks. Slow but perceptible improvement began in July, and has continued up to the present time. By October the ataxia in the legs was almost entirely gone, and also that in the hands as well.

At the present time there is a little unsteadiness upon the feet, at times, but she walks and runs freely. The knee-jerks remain somewhat exaggerated. There is now no headache, no trouble with vision, and, in fact, little to indicate that organic disease is present.

A positive diagnosis seems more difficult now than at any time. Either a localized meningitis or a superficial laceration followed by a low degree of inflammation might possibly explain the symptoms.

Dr. W. M. Leszynsky could not see on what grounds the diagnosis of cerebral tumor or of cerebral abscess could be made in this case. While it was very unusual for spinal concussion to take place in the child, and he had himself never seen a case, yet he thought the symptoms here pointed rather in that direction. It was well known that in the adult spinal concussion could give rise to symptoms resembling almost any condition. In the absence of such symptoms as optic neuritis, of vomiting, of temperature, of focal symptoms generally, he would doubt the propriety of making a diagnosis of tumor or abscess of the brain. Even with the presence of such symptoms, the diagnosis of tumor had sometimes been found erroneous, as in a case which he had presented to the Surgical Society two years ago, the patient still living and now well, and in some cases recently reported in the *Lancet*.

Dr. Holt asked the speaker whether he thought the symptoms were due to concussion?

Dr. Leszynsky said he was inclined to think so.

Dr. Holt thought that in that case he must have overlooked the statement in the history that the symptoms did not develop until two weeks after the injury, and that they then came on very gradually.

Dr. Scharlau suggested that there might have been blood extravasation and the formation of a clot between the skull and membranes, which, by exerting pressure upon the cerebellum, had given rise to the symptoms.

Dr. Holt added that he had not presented the case as one of

tumor of the brain, but as one in which the symptoms in the beginning had pointed that way, and had led two or three able men to make that diagnosis. The case had since taken on a different aspect,—was recovering.

OBSERVATIONS ON THE INFLUENCE OF ARTIFICIAL RESPIRATION ON THE HEART OF THE NEWLY-BORN.

(Dr. Forest read the paper. See ARCHIVES OF PEDIATRICS for March.)

Dr. William H. Thomson said it had been some years since he had had occasion to resuscitate the newly-born infant; but when formerly he did have such experience, he recalled some experiments of Benjamin Richardson, and placed the child in a hot-bath. Richardson had been led to make his experiments by the fact that some pups, which had been buried by somebody in a manure-heap instead of drowning in water, had later been found alive. Attributing the maintaining of life to the heat developed by the decaying manure, Mr. Richardson then practised on guinea-pigs, etc., and found that life could be maintained, without respiration, by placing the newly-born in a warm receptacle. He thought the method of artificial respiration suggested by Dr. Forest ingenious and well worthy of trial.

THE TREATMENT OF LARGE SEROUS EFFUSIONS IN THE CHEST BY FREE INCISION.

Dr. Barnim Scharlau read the paper, which consisted principally of the report of a case. In October a boy was admitted to Mt. Sinai Hospital, who gave a history of having had some time before his last illness an attack of measles, from which he recovered. Two weeks before admission he began to have a cough, lost weight and strength, had some temperature, and indications of pleurisy. The physical examination on admission revealed a large amount of fluid in the pleural cavity, with displacement of the heart to the left. The house physician considered it necessary to do something for immediate relief, and aspirated the right side, withdrawing several ounces of serous fluid.

Dr. Scharlau saw the patient the following morning, and found that, although he had been somewhat improved by the previous tapping, still his condition was precarious. The following facts influenced him to do the same operation as would be called for in empyema, namely, the use of the aspirator-needle was liable to be attended by suction of air into the chest; the needle was liable to become clogged; a fresh effu-

sion was liable to take place, calling for repeated tappings and leading on to empyema; the case was a recent one, adhesions had probably not formed, at least not strong ones; and the sooner the lung was allowed to expand the better. Moreover, he thought the operation employed in empyema was not dangerous if done with antiseptic precautions. He therefore gave chloroform, and made an incision two inches long in the sixth intercostal space, posterior to the axillary line, opening the pleural cavity with the blunt-pointed scissors. The pressure had been so great that only a small part of the fluid could be caught in a basin. In a few hours the temperature fell to 100.2° F. The second day the dressing was renewed, it having become soaked with fluids. The third day the dressing and also the drainage-tube, which had been left in, were removed, oozing having entirely subsided. Temperature normal. After two more days the opening in the pleura had closed; there was normal breathing all over the chest. The patient was kept a few weeks in the hospital to make sure that his recovery was complete. There were physical signs of some thickening of the pleura on the right side.

Thus the child had been cured in five days by open incision, after having been only temporarily relieved by aspiration. But if he were asked whether he would recommend this method for every case of serous effusion into the pleural cavity, he would reply, most emphatically, no. He thought, however, that he would prefer it to aspiration in recent cases with compression of the lung and displacement of the heart.

Dr. William H. Thomson said he would not advocate this method in cases which were at all chronic, but he thought it might prove advantageous in recent cases of the kind described by the author. With the entrance of air into the cavity there was danger of changing a serous effusion into a purulent one. Air was more likely to enter through a large incision than through a small one or one made with the aspirator. But if the case were recent, and adhesions were not such as to interfere with immediate expansion of the lungs and obliterating of the cavity, he thought the larger opening with removal of all the fluid might be desirable. In chronic cases he had observed that too much fluid was aspirated at one time usually. It was better to withdraw only a small amount and see if absorption would not afterwards take place.

Nominations for office:

For president, August Caillé; for secretary, W. L. Carr.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Keating, J. M.: Feeding and Treatment of Diarrhœa of Infants. (*Phila. Med. and Surg. Rep.*, 1890, lxiii. 241.)

He advises Rotch's formula, if the parents are intelligent enough to carry it out. Among the poor he uses the following, and finds it an excellent diet for a child from four to six months old. A six-ounce bottle is filled one-half with ordinary cream, one-half with filtered water, to which is added a level teaspoonful of white granulated sugar and a small pinch of salt. This should be sterilized for an hour. If the mother cannot do this, the water should be *boiling* when added to the cream, the bottle to be corked with a plug of absorbent cotton and wrapped in flannel, and kept so for one hour, and then given to the child. For a younger child, less cream and more water; for an older child the reverse. If the child smells sour after this mixture, baking soda should be added instead of sugar. Remember that the lime-water of drug-stores is made with filtered water only,—not distilled or boiled water,—therefore lime-water should not be added to the milk after it has been sterilized; also bear in mind that if you add lime-water to the mixture before sterilizing, the temperature of 212° will precipitate the lime of the lime-water. Therefore, if you desire to add lime to your mixture, I think the lacto-phosphate—a grain or two to a six-ounce bottle—will do better. This thought has led me to use the following formula, which was published in the *Medical News*, June 5, 1886:

R Sugar of milk, 26 grs.;
 Calcis lacto-phos., $\frac{1}{16}$ gr.;
 Calcis carb., $\frac{1}{12}$ gr.;
 Sodii bicarb., $\frac{1}{2}$ gr.;
 Potas. bicarb., $\frac{1}{12}$ gr.;
 Sodii chloridi, $\frac{1}{8}$ gr.

This, in form of compressed tablets or a powder, can be added to a bottle of milk, cream, and water, or of cream and water, and then the whole sterilized, making a diet, which large experience has shown to be a valuable one.

Van Tienhoven: Treatment of Nocturnal Enuresis in Children. (*N. Y. Med. Rec.*, 1890, xxviii. 280.)

At the Tenth International Medical Congress he read a paper, in which he held that incontinence of urine in children depends upon an insufficiency of the sphincter vesicæ muscle, which allows the urine to enter the upper portion of the urethra, whence it is expelled by a reflex action of the detrusor urinæ. The enuresis occurs usually during the first two hours of sleep, before it is ordinarily possible for enough urine to be secreted to distend the bladder. To prevent the incontinence the author recommended that the little patients sleep upon a bed raised at the foot, so that the urine should flow away from the neck of the bladder, thus taking away the source of the irritation. In fourteen children, whom he had so treated in hospital practice, a cure was speedily obtained without the use of any drugs, the only precautions being to see that the patient emptied his bladder thoroughly before retiring, and that he took no fluids for a time before going to sleep.

Law, George E.: The Treatment of Pseudo-Membranous Laryngitis by Mercurial Fumigation. (*Brooklyn Med. Journ.*, 1890, iv. 525.)

The number of cases treated were seven, with six recoveries; of the six in which a favorable result followed, three had pharyngeal diphtheria; paralysis followed in one of them. In three cases there was no membrane in the pharynx. From one of these, another child apparently contracted diphtheria. In one I can give nothing to verify the diagnosis made. In the third the correctness of diagnosis was proven by a laryngoscopic examination.

Though the method of using mercurial fumigation is simple, it has been misused, and for that reason I venture what may be a superfluous description. The apparatus consists of a tent and an alcohol lamp with arms to support a piece of sheet-iron. A good tent may be quickly constructed in the following manner: Each post of a child's crib is extended by fastening to it, in an upright position, a bed-slat. The frame is completed by cross-pieces above. Sheets to cover the frame complete the tent. The child is placed in the crib at one end, the lamp is lighted, the sheet-iron plate is adjusted and heated, and thirty grains of calomel are dropped upon it. The lamp is then placed under cover at the end not occupied by the child. The vapor quickly rises and fills the tent. The usual time of each treatment is ten minutes, but may be varied if circumstances indicate. The attendants

should be cautioned not to inhale the fumes unnecessarily, as mercurial poisoning is quite certain to result. In the patient, however, this effect does not follow.

The temperature and humidity of the room should be as with any other treatment of the same disease. It is well to have the use of two rooms, reserving one to be used only while the treatment is in progress, and thoroughly airing it after using. Usually at first the treatment should be repeated every two hours, increasing the interval as the period of relief extends. If the patient is weak, it is well to give a stimulant before treatment.

The prompt relief of stenosis, I suppose, to be due, partly at least, to the relaxation caused by the treatment, just as we see relief follow an emetic in membranous croup, even if no membrane is expelled. The cure is due, doubtless, both to the local and the constitutional action of the drug.

While mercurial fumigation will not take the place of surgical means, I believe that no physician is justified in performing intubation or tracheotomy in pseudo-membranous laryngitis until fumigation has been tried, nor, that failing, is he justified in allowing a patient to die without surgical attention.

Fischer, Louis: The Treatment of Pertussis by Bromoform. (*N. Y. Med. Rec.*, 1890, xxxviii. 257.)

It was used in fifty-one cases, and he thought that it was the best remedy when properly applied. Owing to its discoloration and extreme volatility, it should be dispensed in bottles protected from the light and well stoppered. If the bromoform turns brown, then it contains free bromine, and should not be given.

The doses required were the following: For children under and up to one year of age, two or three drops three times a day; children from two to four years of age, three to four drops three or four times a day, depending on the severity of the case; children until eight years of age, four to six drops three or four times a day. It should be given in a small teaspoonful of water. About seventy-five per cent. could be discharged cured after two or three weeks of steady treatment, where no other complications existed.

Ballantyne: The Head of the Infant at Birth. (*Edinburgh Medical Journal*, November, 1890.)

These observations were made by the frozen sectional method upon seven infants. The various organs are described with great minuteness, and the article is well illustrated.

Palm: The Geographical Distribution and Etiology of Rickets. (*Practitioner*, October and November, 1890.)

The geographical distribution of rickets in the British Islands was the subject of a report by the Collective Investigating Committee in the *British Medical Journal* in January, 1890. The subject has also been treated of by Hirsch in his "Hand-Book of Historical and Geographical Pathology." The author reports facts observed by himself, and also obtained by correspondence with physicians in China, Japan, Thibet, Morocco, and India. The disease would seem to be extremely rare in China. Mothers invariably nurse their children, usually for two years, often for three, or even four years. When nursing is impossible, cow's milk or rice is given. The children are much in the open air. In Thibet the disease is practically unknown. In India it is rare, in some provinces almost unknown. In Ceylon it is very rarely seen. In Morocco it is also rare. In Japan well-marked cases of rickets are very uncommon, though the children are not as well nourished as in England. The staple food of the people is rice and fish. The children are much in the open air.

These facts disprove the view that there is a connection between rickets and syphilis. There is probably no country where syphilis abounds more than in Japan, yet rickets is rare. In Morocco syphilis abounds and rickets is absent. It appears, also, that countries grossly negligent of ordinary hygienic precautions, though they pay the penalty in other ways, are not scourged by rickets. The facts that the poorer classes suffer more than the rich, the town-born children more than those in the country, and those in large manufacturing towns more than in small towns, point to conditions which are intensified by poverty and residence in large manufacturing cities. As to diet, the working-classes of Britain are certainly better fed than the teeming populations of China and India. The inhabitant of a crowded Chinese or Indian city, with its total disregard for cleanliness and sanitary precautions, does not compare favorably with the inhabitant of even poor and crowded districts of our large cities, with the exception that the atmosphere of the latter is smoke-laden and murky, while that of the former is clear and bright. The geographical distribution of the disease shows no relation to the presence or absence of lime-salts in the water. We are thus narrowed down to conditions which are aggravated by town-life, and especially among the poor. The most salient fact with regard to the climate of those countries which enjoy immunity from rickets is the abundant sunshine and clear sky. The author believes that this is a most important fact in the causation of

the disease. In proof of his position he cites numbers of most interesting facts regarding the action of sunlight upon plants and animals.

Another fact brought out by a study of the distribution of rickets is that a dry atmosphere is characteristic of non-rachitic areas, and that a wet soil and humid atmosphere are favorable to the prevalence of rickets.

Ballantyne: Relations of the Pelvic Viscera in the Infant. (*Edinburgh Medical Journal*, October, 1890.)

These observations are founded upon the examination by the frozen sectional method of eight infants. The article is illustrated by some excellent drawings, which add materially to the understanding of the minute descriptions given of the various organs.

Russell: Errors in the Diagnosis of Infectious Diseases. (*Glasgow Medical Journal*, July, 1890.)

Of 1499 consecutive cases sent into the Belvidere Hospital as suffering from infectious diseases, 114, or 7.6 per cent., did not suffer from the disease which they were supposed to have, and 85, or 5.7 per cent., had no infectious disease at all. Errors in the designation of cases, as scarlet fever, measles, and whooping-cough, were few. In the case of enteric fever, typhus fever, and diphtheria the errors were excessive. Mistakes were chiefly made in those diseases which are most serious to adult life.

Ruffer: Processes taking Place in the Diphtheritic Membrane. (*British Medical Journal*, July 26, 1890.)

The author is a believer in the theory of phagocytosis. From his observations he arrives at the following conclusions:

1. The bacilli are present in the most superficial parts of the membrane only.
2. An active struggle is taking place between the amœboid cells in the membrane and the micro-organisms.
3. The bacilli do not penetrate the tissues, because they are arrested by the amœboid cells present in the membrane.

Clarke, S. M.: Hydronaphthol in Diarrhœa and Enteric Fever. (*Practitioner*, July, 1890.)

A number of experiments were made by the author with the following results: Hydronaphthol has a very distinct retarding influence on the digestion of egg-albumen by peptic fluids; it has very slight effect on the digestion of milk by the same; and no effect on pancreatic digestion of milk or albu-

men, nor on the conversion of starch into sugar. Hence, to patients on milk diet it may be given without fear of serious interference with digestion. The dose for a child under one year is one-half grain, for older children one-half grain to one grain, every hour or every two hours. It is insoluble in water.

Five cases of typhoid fever evidently did well upon the drug. The author believes that it will prove a valuable remedy in diarrhoea, but the evidence he adduces as to its value is not assuring.

Shaw: *Aprosexia in Children.* (*Practitioner*, July, 1890.)

This is a term revived by Professor Guye, of Amsterdam, who was one of the first to call attention to these cases. Its meaning is "heedlessness," and is applied to the condition of impaired faculty of attention and observation, seen in certain children. These children, with the onset of slight deafness, become dull mentally, and retrograde in mental capacity to a marked degree. It is found that in such cases there is almost invariably present an overgrowth of the lymphoid tissue of the pharynx, commonly known as "adenoids." Pressure of these growths upon the orifice of the Eustachian tube accounts for the deafness, which is usually relieved by their removal. At the same time there is improvement of the mental capacity far in excess of the improvement in hearing. The symptoms accompanying this condition are, as a rule, not urgent. There is a tendency to mouth-breathing and a habit of snoring at night. The child has headaches, and frequently a sleepy, vacant expression.

It is well known that both the intracranial, venous, and lymphatic systems are in direct communication with those of the nose and naso-pharynx. It is probable that interference with the circulation by these adenoid vegetations results in malnutrition, expressing itself in the condition of aprosexia.

Van Puteren: *The Physiology of Stomach Digestion in Infants.* (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

The author used as the material for his investigations the contents of the stomach obtained by irrigation. The subjects of his study included two hundred and forty-eight healthy infants in the St. Petersburg foundling asylum, their ages ranging from two to forty-one days. He made one thousand and twenty-seven examinations, the infants in every case being nourished at the breast. For the determination of the quantity and quality of the acid and the lab-ferment of the stomach, its

contents were obtained by the introduction of an ordinary Jaques rubber catheter, with light pressure upon the walls of the organ. For the determination of the peptonization and the duration of digestion, washings were used of distilled water at 35° C. A glass cock with double bore, in which were three glass tubes, was used for the latter procedure. The evacuations were made at intervals of ten to fifteen minutes during the period of digestion. The following points were subjects of consideration:

1. *Length of time during which the milk ingested remained in the stomach.*—In the course of the first month the average quantity of milk which was taken at each meal for each child was sixty to eighty grammes. It was an easy matter to withdraw the contents of the stomach during the first hour and a half after the beginning of the meal. By irrigation with distilled water the contents could be obtained for a period of two hours and twenty minutes, providing the quantity of milk taken was not under twenty to forty grammes. It was believed that the material always came from the stomach and not from the intestines, since it was not alkaline and contained no bile. During the first hour the quantity in the stomach rapidly diminished, and in two hours the stomach did not contain more than twenty to thirty cubic centimetres. The residue disappeared slowly in the course of the next half-hour.

2. *The acid reaction of the stomach contents in infants* was found to be much less marked than is the case in adults. There were seven hundred and forty-one filtrations of the stomach contents made which showed increasing acidity as the time of digestion progressed. Later than two hours after nursing pure contents of the stomach could not be obtained. The most marked acidity was found ninety-five minutes after filtration.

3. *Character of the acid portion of the stomach contents.*—With methyl violet for hydrochloric acid and Uffelmann's reagent for lactic acid positive results were obtained. Hydrochloric acid alone was regarded as the normal acid property of the gastric contents for the first two months of life.

4. *The antifermentative power of the stomach contents.*—The contents of the stomach were taken immediately after nursing, and at various subsequent periods of digestion, and plate cultures were made at once, and after an interval of two hours. For a nutrient medium a mixture of skimmed milk, albuminate of soda, and eight per cent. of gelatin was used. No perceptible difference was noted as to the micro-organisms obtained by the two methods.

5. *The presence of lab-ferment.*—Five cubic centimetres of

the contents of the stomach were added to twenty cubic centimetres of unadulterated milk and warmed in a water bath at 40° C. A similar mixture was made neutral in its reaction in another flask, and a third was made weakly alkaline. With infants under twenty-four days old there was always a negative result. With older children there was weak coagulation. With children from twenty-nine to forty-one days old a manifest influence of lab-ferment was perceptible.

6. *The peptonization of albuminates.*—No accurate analyses were made, but, according to Ewald's methods, the following facts were demonstrable: Albumen was seldom found, and only in the course of the first hour; peptone was constantly present, likewise syntonin, from twenty-five minutes after the beginning of nursing until the end of the period of digestion. Propeptone was found thirteen times in fifty-three cases. Sugar was always present, also fat, but as long as peptone was present in the stomach the fat could not be broken up into fatty acids by the action of ether.

This method of investigation has heretofore been very little used for the study of the functions of the infant stomach. Raudnitz and Leo have used the method of irrigation to a slight extent. The author's investigations have been far more extensive, and he has given exact data in regard to the presence of hydrochloric acid, and also denies the presence of lactic acid under normal conditions. He also, unlike Leo, was unable to demonstrate lab-ferment in the stomach of the infant prior to the twenty-fourth day. Further investigations upon this subject would yield valuable results.

A. F. C.

Droixhe: Salol in the Gastro-Intestinal Diseases of Children. (*Journ. d'Accouchements*, February 28, 1890.)

Salol, administered by the mouth, does not undergo any change until it reaches the intestine, where it is acted upon by pancreatic secretion, and decomposed into carbolic acid and salicylic acid. Its use as an antiseptic is modified by the action of the pancreatic secretion, and it has been employed for different diseases of the stomach and intestine in children. Barr has reported thirty-five cases of gastro-intestinal inflammation in which salol was administered. When the symptoms were those of acute gastro-enteritis, with vomiting of the food and copious stools of disagreeable odor, the use of salol, either pure or combined with an inert powder, was found efficacious. If the stools were lumpy and the vomited material mixed with bile, calomel alone gave better results than when combined with salol. When the stools are serous, in dysentery and in colic, salol should be mixed with a little opium to allay the

tenesmus, or it may be combined with codeine or narceine. In the first period of acute gastro-enteritis, and in the chronic forms of entero-colitis, salol acts most efficiently. Barr gave salol in doses of three centigrammes to children under six months of age, and from three to nine centigrammes to those from sixteen to eighteen months, from nine to twelve centigrammes to those who have reached two years. Salol is a remedy which is easily administered, and it is without toxic action. It is to be ranked among the approved intestinal antiseptics, which also include naphthol, naphthaline, sulphide of carbon, and Belloc's charcoal. The author used it in the summer of 1889, combined with oleo-saccharate of canella, in four cases of infantile cholera, and with very encouraging results. Loewenthal has used salol to prevent the proliferation of the bacillus of cholera and the formation of toxine, which is produced by contact of the bacillus with the pancreatic secretion, in the midst of peptonized albuminous matter. In his experiments he used tubes containing an infected paste, introducing salol into some of the tubes, and leaving it out of others. Some of the latter was introduced into mice. Some of the mice died and the others became very sick. Other mice were inoculated with material which contained salol. No effect was produced because the toxic secretion of the bacilli could not act upon the pancreatine contained in the material of inoculation, while the salol was decomposed by the pancreatine into carbolic and salicylic acid.

A. F. C.

Demme: The Use of Strophanthus in Children.
(*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

Tincture of strophanthus, in a one to twenty solution, at first produced a strengthening of the systolic contraction of the frog's heart, somewhat less decided than is produced by digitalis. This effect could be sustained a long time by careful dosage; but by increase of the dosage it soon diminished, and after the occurrence of peristaltic contraction of the ventricles a cessation in systole resulted. The toxic effect of strophanthus on the heart-muscle often occurs unexpectedly and more suddenly than with digitalis, hence its use with children requires greater caution than does digitalis. Strophanthus also causes a prolongation of the diastole and a diminution in the frequency of the pulse, as long as the energy of the systole increases. The author used the tincture in seven cases of uncomplicated mitral disease, in five cases of scarlatinal nephritis, in three of exudative pleuritis, and in two each of bronchial asthma, pulmonary tuberculosis, and whooping-cough, in children from five to fifteen years of age. With

the younger ones the medicine caused dyspepsia, and so could not be taken for a very long time. The initial dose for the older children was one drop four times daily, and for those from five to ten years old one drop three times daily. After four to seven days the dose could usually be increased to three drops four or five times daily. Nausea and cold sweating were always an indication for suspending the strophanthus and administering wine, cognac, and coffee. The diuresis with heart-failure was usually increased after three or four days, the pulse becoming slower and stronger, the breathing easier, the dropsical phenomena less marked. In five of the seven cases of mitral disease the diuretic effect disappeared after three or four days, and compensation could only be obtained by the combined effect of strophanthus and digitalis. In two cases of chronic scarlatinal nephritis strophanthus had a very prompt diuretic effect, with improvement of the threatening symptoms, while in the acute cases there was no good result. The effect in the case of exudative pleuritis was satisfactory, likewise in the two cases of bronchial asthma, in which strophanthus was given as a supplement to iodide of potassium treatment. In pulmonary phthisis the result was not positive, but in the two cases of whooping-cough, in which there was persistent dyspnoea and oedema of the lower extremities, in consequence of dilatation of the heart, the results were good. The action of strophanthus consists in elevation of the blood-pressure, and favorable influence upon the respiratory centre. It can complete the action of digitalis when both drugs are given, and neither an accumulation nor a diminished activity has been observed after long-continued employment of the drug.

A. F. C.

II.—MEDICINE.

Comby: *Urticaria in Children.* (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

Urticaria in childhood is accompanied by phenomena of a severe character, for it may assume a chronic character and lead to prurigo. Special attention must be paid to the treatment of this troublesome affection. It is probably of toxic origin, occurs most frequently among badly-nourished children living amid bad hygienic surroundings, and may be associated with dyspepsia and dilatation of the stomach. The hypothesis of a virus formed in the intestinal canal, taken up by the circulating blood, and distributed over the skin would explain the gastric disturbances so frequently seen in urticaria. A

predisposition to nervous diseases is also an influential factor, and all the disturbances occurring in adults in consequence of urticaria manifest themselves in the same way in children, which may be thus explained: A badly-nourished, dyspeptic child has the customary wheals of the disease, which at first come and go quickly. After months or years the chronic form of the disease assumes a different appearance. There is itching, but no longer wheals; in their place there may be papules, excoriations, fissures, eczematous eruptions. The disease is then no longer curable; it has become prurigo. Kaposi also has made the observation that prurigo may develop from an urticaria which has lasted one or two years. Comby does not think that teething has an especially unfavorable influence upon the disease, nor yet that scrofula has. The chief cause for its development, according to the observations of a number of writers, is disorder of the stomach in the form of weakness of digestion. The attempt at prophylaxis will consist in the employment of suitable nutrition. Since observation has taught that breast-fed children are seldom attacked with the disease, Comby suggests for artificially-nourished children a milk diet corresponding to their age. Meat and cereals with difficultly digestible hulls, also alcoholics, should be rigorously avoided. One should also be careful and not give too much food, for this will conduce to dilatation of the stomach and dyspepsia. The best form of nourishment is sterilized milk. In addition, one can attempt to make the intestinal canal aseptic with naphthol, two centigrammes every two hours, and strychnia, two milligrammes daily. The local treatment should be a matter of the greatest care. Baths or local applications, containing one part vinegar and three parts water, have been recommended, but are not always efficient; but daily inunctions with one to two parts of tartaric acid and forty of vaseline will always act favorably. The author has seen the best results from daily inunctions of cod-liver oil. The oil may also be given internally.

A. F. C.

Cauvet: The Buccal Phenomena and Complications of Measles in Children. (*Gaz. Méd. de Paris*, May 31, 1890.)

There may be two kinds of lesions in the mouth during the course of measles. One kind depends upon the infection of the disease itself, the other has no direct relation with measles; it is a superadded complication. The phenomena which are produced by the peculiar infection of measles are of two kinds: First, buccal erythema, a true exanthema, which usually manifests itself at the same time as the nasal catarrh, and consists now in a red spottiness, and again in a simple

redness, somewhat more accentuated upon the tongue. This erythema is often followed by desquamation of the tongue. Second, follicular stomatitis, due to glandular hypersecretion with obstruction of the excretory canal, coinciding ordinarily with analogous phenomena of the skin, in the form of the miliary eruption. It is a debatable point whether the poison of the disease eliminated by the glands does not produce these phenomena. As to the oral complications superadded to measles, they vary in their nature and gravity.

1. There is muguet, which is most frequently found among infants with measles.

2. Aphthæ, located by predilection, first upon the tongue, then upon the lips and the internal aspect of the cheeks.

3. Ulcerative stomatitis, which may follow rupture of the aphthæ, or may result from a true infection which has been superadded.

4. Diphtheria, which, as has been shown by Roux and Yersin, may develop wherever there is epithelial desquamation. There is frequently a lingual desquamation consecutive to buccal erythema. It is, therefore, not astonishing that diphtheria in measles primarily attacks the tongue, which is not customary under the other conditions.

5. Gangrene of the mouth, which is a severe and, at present, a rare complication.

To avoid all these accidents, one should make free use of antiseptic washes for the buccal cavity. A saturated solution of boric acid will be found very serviceable. The washes should be used from the very beginning of the disease, when, it may be, there is only a mild degree of erythematous stomatitis. These complications are much more common in hospitals than in private practice. This is fortunate, for in hospitals they are much more likely to receive the attention that is required.

A. F. C.

Briggs, H. M. : A Case of Alcoholic Cirrhosis of the Liver in a Boy aged Thirteen. (*N. Y. Med. Rec.*, 1890, xxxviii. 206.)

The patient was found in an unconscious condition at 1 P.M., his absence having been noticed several hours. He was removed to the house, and died a few hours later without regaining consciousness.

When two and a half years of age he had an attack of bronchitis, and was then given whiskey. He contracted at once, apparently, a taste for it, and its use had been continued to a greater or less extent since that time. The family said he was a rather stupid boy; there were few things he cared for,

and, as he liked whiskey, he had always been allowed to have it, and during the last two or three years had taken it almost constantly.

Autopsy.—His face was pale, pasty, and bloated. There was slight œdema of the legs, the abdomen was large, and the layer of fat was extremely thick. On opening the abdomen, the liver extended an inch and a half below the free border of the ribs, and its surface presented the typical appearance of a well-marked hobnailed liver. There was no fluid in the abdominal cavity. The heart was slightly large for the age of the subject, and the lungs were somewhat œdematous. The spleen was enlarged, rather firm, and weighed four hundred grammes. The kidneys presented the usual appearances of a very moderately-developed, diffuse nephritis. The capacity of the stomach was increased, and the mucous membrane was thickened and congested, and was covered by a thick, glassy mucus. The brain showed what is familiarly known as a "wet brain." On opening the dura a large amount of fluid escaped, and the meshes of the pia were distended with serum; the ventricles were greatly dilated, and the ependyma was tough, fibrous, and granular.

The surface of the liver was characteristically hobnailed, the elevated portions being of a light-yellow color, and the depressed lines between them being a bright red. The size was considerably increased, and the weight was fourteen hundred and thirty grammes. On section the tissue was friable and presented the same bright-yellow projecting portions with narrow, depressed, grayish lines surrounding them. The microscopical appearances showed the ordinary changes found in cirrhosis, but the fatty infiltration of the liver-cells was extraordinarily advanced. The amount of new-formed connective tissue was not great.

Lehlbach, C.: Prevention of Infectious and Contagious Disease. (*Phila. Med. and Surg. Rep.*, 1890, lxiii. 156.)

He shows the uselessness of disinfection by burning sulphur and by the other ordinary methods employed for that purpose, and advocates the use of superheated steam. He shows the practicability of steam disinfection on a large scale by describing the system as carried on in Berlin. It must not be understood that in superheated steam we have an infallible method for the prevention of infectious disease, but we can thus render aseptic in a convenient way those articles which are the most common vehicles of infectious and contagious disease.

In preventing the spread of contagious disease the immediate isolation of the patient is important. He should be con-

fined to one room; the nurse should attend to the patient *only*; the meals should be brought to the door; and all visitors and members of the family should be excluded from the sick-room. As soon as the patient has recovered or died, thorough disinfection should be undertaken by the most efficient means at command. If steaming is impossible, there is thorough disinfection by means of carbolic acid or bichloride of mercury. Children should not be allowed to return to school, and visitors should not be allowed in the sick-room until this has been thoroughly done.

Carpets, if such nuisances are present in the sick-room, should be sent, protected by antiseptic sheets, to some steam carpet-cleaning company. The same may be done with feather-beds, mattresses, and pillows. Where walls are papered, a very good means of removing almost all the germs consists in thoroughly rubbing them down with moist bread. All wood-work and furniture should be thoroughly washed with a strong antiseptic solution.

In diphtheria, the sputa should be received in an antiseptic solution, as in cuspadores, which can be destroyed by fire. In scarlet fever, during the stage of desquamation, means should be taken to prevent the fine scales containing germs from floating off. This can be effectively done by anointing the patient once or twice daily with some animal fat. The disinfection of typhoid-fever stools is a very important sanitary measure.

Lloyd, J. H.: *Clinical Operations on Diphtheria and Diphtheritic Paralysis, with Special Reference to Treatment.* (*Phila. Med. News*, 1890, lvii. 135.)

In the treatment of diphtheria, the writer advocates the use of chloride of ammonium instead of the chlorate of potassium, which is usually given. It acts as a stimulant to the mucous membrane, increasing the normal secretion, and so diluting and dissolving thick, tenacious mucus and fibrinous masses. It makes an admirable mixture with the tincture of the chloride of iron. A mixture of one-half drachm each of the iron and the chloride of ammonium to one ounce of a thick syrup (preferably of tolu) may be administered internally every two hours in teaspoonful doses, and at the same time a soft camel's-hair throat-brush is to be used to apply the mixture thoroughly to the diseased parts.

The treatment of diphtheritic paralysis itself is mainly expectant. The repair must be by a gradual and rather slow nutritive process. The effect of drugs upon this process is at least problematical. Clinical observations seem to justify the use of strychnia in small doses. The main indication is to

feed. In failing heart-power, alcohol is better than digitalis. The faradic current is useless, but the galvanic current certainly does promote nutrition, and on that account should be used, but only by the physician.

Edwards, W. A.: Mitral Stenosis in Childhood. (*Phila. Med. News*, 1890, lvii. 186.)

The writer defends the opinion that obstruction at the left auriculo-ventricular orifice presents a most characteristic sound,—the presystolic murmur. He gives a tabular report of twelve cases. He concludes that the congenital origin of mitral stenosis is not proven; but that its association with rheumatism is as definite as that which exists between regurgitation at the same valve and the rheumatic diathesis. This association is apt to be with a rheumatic condition that is not marked nor acute, but latent and insidious, in contradistinction to the severity of the attack in which the regurgitant murmur is usually produced.

A murmur heard above and within the apex, that ceases abruptly with systole, immediately upon the apex, striking the chest wall, or, with the finger upon the carotid, as soon as the pulse is felt, a murmur which in a child is usually harsh or rolling in timbre, and may commence immediately after the second sound and occupy the entire long pause, or may be audible only at the termination of this pause (the presystolic period, or, according to some, the post-diastolic), is, as we understand it, diagnostic of mitral stenosis. There are certain concomitant signs, such as accentuation of the pulmonary artery, second sound and seeming reduplication of the second sound, and the presystolic thrill. The largest proportion of cases is accompanied also by the murmur of regurgitation. There are dyspnoea, cough, and, later, local or general dropsy, delirium cordis, and tachycardia, or cardiac distress. Others may present evidences of lesions in the nervous system, such as chorea, epilepsy, hemiplegia, and localized palsies from emboli.

The inherent power of the growing heart is usually sufficient to allow the organ to accommodate itself to the organic alteration, and, in the absence of new invasions of the disease, to permit the child to attain maturity with a fair degree of health. In early life, it probably more often proves fatal than does regurgitation at this orifice.

Gill, C. A.: Infantile Diarrhoea. (*Phila. Med. and Surg. Rep.*, 1890, lxiii. 250.)

He recapitulates as follows: 1. Withdraw all milk for from twenty-four to thirty-six hours. 2. Regulate the quantity and

the quality of the food and the frequency of giving it. 3. Give plenty of cool water. 4. Reduce the temperature with the bath. 5. Give medicines of an antiseptic and astringent character and stimulants as needed. 6. Wash out the colon two or three times a day.

Butler, F. A.: Chorea. (*Phila. Med. and Surg. Rep.*, 1890, lxiii. 248.)

He advises nourishing food of a liquid form, to be given frequently. A tablespoonful of port wine three times daily, and an alcoholic bath once each day; and the following prescriptions:

No. 1.

R Syr. ferri iodidi, fʒij;
Liq. potas. arsenit., fʒiiss;
Syr. simpl., q.s. ad ʒiv. M.

Sig.—One teaspoonful every six hours.

No. 2.

R Extr. scutellariæ fl., fʒj;
Tr. digitalis, ʒj;
Extr. cascariæ sagr. fl., fʒiv;
Syr. simpl., q.s. ad fʒiv. M.

Sig.—One teaspoonful every six hours.

One teaspoonful of each of the above is given alternately every three hours.

Ronaldson: Tetanoid Convulsions in an Infant: Operation; Recovery. (*Edinburgh Medical Journal*, October, 1890.)

The infant was perfectly well till the ninth day, when it began to have convulsions, which continued in spite of all treatment. The umbilical cord had not fallen. It was dry, black, and of bad odor, though there was no redness or sign of inflammation at the umbilicus. It was removed and antiseptics thoroughly applied, but without result. The umbilicus was finally excised, when the convulsions subsided. They soon returned, however, when relief was afforded by removal of the stitches at the incision. The ultimate recovery was complete.

In discussion, Dr. Brakenridge, who had seen the child during its illness, was inclined to believe that the antiseptics with which the stump had been dressed were instrumental in checking the convulsions. It was noticed that when the child showed signs of carbolic-acid poisoning by absorption from the dressings the fits ceased, and returned when the toxic symptoms disappeared. Acting upon this hint, sodium sulpho-carbolate had been given during the later attacks, and had certainly seemed to have a controlling influence.

III.—SURGERY.

Lane: The Deformities which Develop in Young Life.
(*The Lancet*, August 9, 1890.)

In these lectures are considered the causation, pathology, and treatment of the deformities, both simple and rachitic, which develop during young life.

1. The bones, the details of the structure, and the functions of the several joints vary with such movements as are habitually performed.

2. The form of the skeleton varies from the normal in a degree which is proportionate to the length of the period during which the movement has been performed, and to the amount of energy expended in the act.

3. For the so-called normal condition of the skeleton it is necessary that during growing life the individual shall combine attitudes of activity with attitudes of rest, and that they be varied in character.

4. During the period of a single assumption of an attitude of rest there exists tendencies to change both in the form of the bones and of the joints.

5. In the young subject the rate of growth of any portion of an epiphysial line varies inversely as the amount of pressure it transmits. If one-half of an epiphysial line habitually transmits more pressure than the other, the amount of bone produced is correspondingly less. Therefore the frequent assumption of an attitude of rest, not corrected by suitable variations in attitudes of activity, results finally in a progressive alteration in the form and functions of the bones and joints.

6. The more vigorous and robust the child, the less likely is he to assume attitudes of rest for any time.

7. The peculiar variety of resting posture varies to some extent with the age and surroundings of the individual.

8. The density of the osseous system varies directly with the muscular development.

9. The rate of growth of bone in an epiphysial line is more rapidly influenced by abnormal pressure in the feeble than in the robust. This is marked in rickets.

10. In the non-rachitic child the diaphyses of the bones do not change their form materially other than by the abnormal rate of growth of the epiphysial lines.

11. In the rachitic child the diaphyses yield in form in proportion to the degree of rickets present.

12. If the easy, erect posture be assumed constantly, and for a long period of time, typical dorsal excurvation results.

Each vertebra rotates, and compression-changes occur in the anterior segments.

13. If the easy, erect posture be assumed, the individual standing on one leg, the other knee being kept bent, the pelvis is rotated around two axes, and produces an effect which gives rise to a leverage action by the transverse processes and bodies of the vertebræ in the dorsal region, producing the remarkable alteration in the form of the thorax with which we are so familiar.

14. Flat-foot is explained by the unwinding of the spinal fibres of the superior internal and the inferior calcaneo-scaphoid ligaments in the position of rest, or abduction of the foot upon the astragalus.

15. If the easy, erect position be assumed habitually, the outer portion of the growing lines of the femur and tibia produce bone more slowly than normal, while their inner segments form it more rapidly. This causes an outward displacement of the patella.

16. "Back-knee" is produced by habitually assuming the attitude of extension of the leg, causing the anterior segment of the epiphysial lines of the femur and tibia to transmit more pressure than do the posterior.

17. As the rickety child assumes the sedentary posture, the thorax is fixed upon the lumbar spine, the sacrum yields around a transverse axis, and there results kyphosis and the peculiar oval-shaped pelvis.

18. When knock-knee develops in a rachitic subject, the diaphyses of the femur and tibia yield also.

19. Bow-legs are developed only, with rare exceptions, in the rachitic subject. It depends upon a yielding of the softened diaphyses, and the epiphysial lines are not markedly modified in the rate of growth until the child has acquired the habit of standing and walking. Then they react to abnormal pressure in the manner described in knock-knee, but in a reverse direction, the growth of the inner condyle being subnormal, and that of the outer condyle excessive.

20. To treat the simple acquired deformities, we should attempt (a) to improve the nutrition and vigor of the individual; (b) to prevent his assuming attitudes of rest, especially that one which is particularly responsible for his deformity; (c) to cause him to adopt habitual attitudes of activity; (d) to make him perform exercise, both generally and of the affected part in particular; (e) in suitable conditions apply such a mechanical arrangement as will tend to reverse the abnormal pressure and cause the bone to resume its normal form; (f) to avoid as much as possible the use of instruments which inter-

fere with the full development of muscle, *e.g.*, lateral curvature of the spine; (*g*) to make him rest for sufficient periods of time in suitable postures; (*h*) in suitable cases, as in advanced flat-foot, to remove the deformity, and to place and retain the part as much as possible in a position of activity for a considerable period of time by means of a suitable apparatus.

Browne: Congenital Enlargement of the Thyroid: Removal; Recovery. (*The Lancet*, August 9, 1890.)

The patient, a female, aged ten years, was born with a "lump in her neck" the size of a marble, which has been growing ever since.

At the time of admission there was a tumor in the region of the thyroid gland about the size of a foetal head at seven months. The left portion was the more prominent; had secondary nodules upon it, and the front was intimately adherent to the skin, which was of a dusky-blue color, ulcerated in places, and marked with distended superficial veins.

The whole tumor was fairly movable on the deep structures. There were no enlarged glands. The tumor was punctured in three places, blood only being drawn off.

The tumor was removed by an elliptical incision surrounding the left portion, where it was incorporated with the skin without difficulty.

Hemorrhage was controlled for the most part by torsion: two ligatures were required for the base.

The portion removed included the left lobe, the isthmus, and a portion of the right lobe.

The patient was up in a month and the wound was entirely healed in two months.

It was feared that the cicatrices would cause contraction of the neck on the left side, but there was no inconvenience whatever in this respect at the time of her discharge.

Microscopic examination of tumor.—Tumor weighed eight and one-half ounces: encapsuled. Behind there was a piece of healthy thyroid tissue adherent to the capsule of the tumor.

On section the tumor was hard and grating, of a pinkish-white color, and intersected in all directions by dense fibrous tissue enclosing small cysts which contained a yellowish colloid material.

Microscopic examination proved it to be a fibro-cystic goitre, the fibrous element choking up the follicles to form the cysts. There were no sarcomatous elements, and the piece of thyroid gland removed at the time of operation was healthy.

Remarks.—The case is interesting not only because it was

congenital, but also because it had been diagnosed by others to be a cystic sarcoma.

This case is the eleventh in the writer's experience, and with only one case—in which the operator was confined to removal of the isthmus—of recurrence.

Morgan: Large Empyema passing down through the Diaphragm. (*The Lancet*, July 19, 1890.)

A delicate boy, aged six years, had been ill three weeks when admitted to the hospital. On examination it was found that the whole of the right side of the chest was absolutely dull on percussion. There was no motion. The intercostal spaces were bulging. Below the line of the ribs and extending nearly to the ilium was a fluctuating swelling, but there was no way of ascertaining whether this communicated with the thorax or not. This was incised and about sixty ounces of pus was evacuated.

A finger was inserted into the cavity and passed up into the right thorax through the track of the abscess. The upper surface of the diaphragm and the inner surface of the lower ribs and intercostal muscles could be felt, so that the fluid in the pleural cavity must have passed between the attachment of the diaphragm to the lower ribs and separated the oblique muscles from the transversalis, and in the cellular tissue between these muscles lay the abscess which formed the prominence on the abdomen. A large drainage-tube was passed through the track described into the pleural cavity. The wound healed nicely. The lung expanded, and, when discharged, the breath-sounds, though weaker, could be heard distinctly as low as on the left side. Movements of chest visible but somewhat limited. Resonance is impaired at base, but nowhere is it dull.

Rivington: Two Cases of Intussusception treated with the Aid of Barnes's Bag. (*The Lancet*, June 7, 1890.)

One case was a man of fifty-seven years, who six months before admission had noticed that there seemed to be a constriction in his rectum. He passed his fæces in small lumps accompanied by considerable blood. During an attack of bleeding and pain he felt the gut protrude externally about two inches and then return. This recurred.

A rectal examination revealed a velvety tumor with an orifice at its apex. A Barnes bag was introduced empty into the rectum and distended with fluid. The intussusception gradually receded and finally disappeared.

The diagnosis formed was annular stricture of the descend-

ing colon, leading to prolapse of the bowel through the straining efforts necessary to overcome the obstruction. The patient died one and one-half years later, and the post-mortem examination revealed primary cancer of the sigmoid and secondary cancer of the peritoneum and liver.

The second case was a boy seven months old. The child had been sick two weeks, suffering from pain, vomiting, diarrhœa, and the passage of blood from the bowel. The day before admission the bowel had come down. It was noticed that the ileo-cæcal valve formed the apex of the intussuscepted portion. Reduction by injecting water was effectual for a time, but later all efforts failed to keep the bowel up.

The intussusception was then reduced as far as it would go, and retained by introducing into the rectum an empty Barnes bag and distending with air. This was removed twice a day to allow of the escape of liquid motions, but, the bowel coming down, it was finally retained for twenty-four hours. At the end of that time the tumor had disappeared. The child gradually became better of the symptoms of the intussusception, but died three weeks after the reduction of the intussusception.

To the author it appears probable that the distended bag acts by causing the peristaltic or antiperistaltic action of the bowel to be expended upon the intussusception; or it may be that the reduction is due to the accumulation of gas above the bag. The author considers this method an adjunct to the treatment of intussusception.

Lockie: A Case of Chorea with Aphasia, followed by Acute Rheumatism. (*The Lancet*, August 2, 1890.)

The relationship between chorea and acute rheumatism is not often manifested as in the following case:

Koch has come to the conclusion that the choreic virus is so closely related to that of rheumatism that either disease may develop.

The patient, aged eleven years, had been quite healthy till two months before admission to the hospital, when she was noticed by her family to be quite snappy, peevish, and irritable. She had been before somewhat hard worked at school.

The onset of the choreic movements was preceded by profuse diarrhœa. About a week after this she lost the power of speech. It was noticed that the child slept fairly well, and that the movement ceased during sleep. On admission the child was semiconscious. There was no cardiac bruit.

Patient passed a small amount of water containing albumen, but this trouble disappeared under treatment. About one

month after admission she developed swelling of the knee-joints, and a little later pleurisy.

The highest temperature present was 104°. It had two attacks of intense frontal pain. She was discharged cured after three months of treatment.

This was doubtless a case of embolism; and, if so, affords an illustration of the fact that vegetations may be present in the heart without giving rise to a cardiac bruit,—a fact of which the writer has before had evidence in a case that terminated fatally.

The patient was treated with arsenic and salicylate of sodium, and special features were relieved symptomatically.

Lester, F. W.: Intubation of the Larynx in Diphtheritic Croup. (*N. Y. Med. Rec.*, 1890, xxxviii. 232.)

He reports and gives the details of fifty-eight cases operated upon at the Willard Parker Hospital. Of these cases, twenty-four (or 41.3 per cent.) recovered. Better results can be obtained in hospitals than in private practice, especially in one properly equipped for the operation; for the nurses in attendance, by reason of special training and long experience, acquire great skill in the after-management of the cases. It is exceedingly painful to observe an inexperienced doctor and nurse at the operation, the one unable to locate the larynx, and the other unconsciously letting the patient slide down off her lap, and, after considerable digging and ploughing into the inflamed soft parts of the throat, the tube lets go and finds its way into the œsophagus, an appalling and embarrassing situation for all concerned; and thus it is that an unskilful attempt and absolute failure at the performance of any new operation engenders doubt and positive resistance in the minds of the laity, and adds additional momentum to that feeling of hostility towards a truly scientific and successful procedure.

Wallace, T. C.: Dry Gangrene in a Child. (*N. Y. Med. Rec.*, 1890, xxxviii. 149.)

It occurred during convalescence from measles in a female, twenty months old. Early in the morning of April 12, 1886 (after a comfortable night), her right leg up to and including the ankle was found to be very cold. There was no pain and no discomfort. During the next day, the foot assumed a livid hue, which gradually deepened in color. The next morning the limb was of death-like coldness up to and above the ankle, of a mottled, mahogany color, darker at the toes and gradually growing lighter towards the ankle, where was a well-defined edge. The next morning, the big toe and the one next to it

was in a state of gangrene, and there was a large gangrenous spot under the heel. The color above and around the ankle was much more natural and the parts warmer. In a few days all the toes underwent gangrene,—true senile gangrene, dry, black, and odorless. This gradually spread until the whole foot nearly to the tarsus was in a like condition. The true line of demarcation at last formed just anterior to the tarso-metatarsal joints, and, on June 26, amputation through these joints was done. The gangrene under the heel included only the soft parts, and the periosteum was not involved. The stump healed satisfactorily, and the child has enjoyed good health ever since. However, the limb has never grown equally with its fellow. It is now seven-eighths of an inch the shorter.

Osgood, Gilman: *Epilepsy and Depressed Skull.* (*Brooklyn Med. Journ.*, 1890, iv. 450.)

He reports the case of a boy, fourteen years of age, who, when about eighteen months old, fell from a two-story window, and received some severe injury to his head. The epilepsy began when he was ten years old. He appeared to be in very good physical health, excepting that he had partial hemiplegia on the left side, and had a marked depression of the skull in the temporo-occipital region. He averaged about one fit in three days, a few occurring at night. Just before a seizure he would use profane language, and after the convulsive stage he would seize anything he could lay his hands on and throw at those about him. On December 12, 1887, the depressed skull was trephined, and what appeared to be a large cyst in the right hemisphere was opened. A drainage-tube was inserted, and the wound dressed antiseptically. Within forty-eight hours after the operation the patient had three fits, but subsequently had none. He did fairly well until the thirteenth day, when the wound did not drain well. There was a rigidity of all the muscles; he did not appear to feel the prick of a pin, and was speechless, which condition was soon recovered from after the removal of the dressings and the discharge of about a half-ounce of serous fluid. On the fourteenth day he became comatose, could not be roused, and died the following morning.

Gibney, V. P.: *The Prognosis of Lateral Curvature in Young Girls.* (*N. Y. Med. Rec.*, 1890, xxxviii. 204.)

The prognosis depends a great deal on the early recognition of the deformity. It will also depend on the thoroughness of the treatment employed. If an apparatus be used it must be made so as to meet the indications, and must be worn for a

long time,—two to five years. If gymnastics are prescribed, the patient must be taught the different movements, must be drilled in the same after a good knowledge is acquired, and the exercises should be continued at home for a year or two. If it is found that the deformity is very slight, and the patient can lead an out-of-door life, and is not crowded too much at school, a good prognosis can be expected if only the ordinary rules governing general health are observed. In the more advanced cases it is not possible to correct the deformity to any great extent. Indeed, it may be safely assumed now that no form of treatment yet adopted is equal to the correction of an osseous deformity. All that we can hope is a better position in standing and sitting, a better carriage, a filling out of the chest more symmetrically, and an ability on the part of the patient to hide the deformity.

Waxham, F. E.: Three Hundred Cases of Intubation of the Larynx, including a Successful Case in the Adult. (*North American Practitioner.*)

The author reports the above number of cases with 105 recoveries, or 35 per cent., classified as follows:

Under 1 year of age,		10 cases with 3 recoveries,		or 30.00 per cent.	
Between 1 and 2 years,	40	"	9	"	22.50
" 2 " 3 "	49	"	11	"	22.48
" 3 " 4 "	49	"	18	"	36.73
" 4 " 5 "	60	"	24	"	40.00
" 5 " 6 "	27	"	14	"	51.85
" 6 " 7 "	21	"	7	"	33.33
" 7 " 8 "	22	"	10	"	45.45
" 8 " 9 "	7	"	4	"	57.14
" 9 " 10 "	6	"	3	"	50.00
" 10 " 11 "	3	"	1	"	33.33
Aged 12 years	2	"	0	"	00.00
" 13 "	1	"	0	"	00.00
" 14 "	1	"	0	"	00.00
" 20 "	1	"	0	"	00.00
" 42 "	1	"	1	"	100.00
Total,	300		105		35.00

The youngest patient operated upon was an infant of five months. The youngest to recover were two of nine months, and one of ten months, all well-marked cases of diphtheria with laryngeal invasion. 99 cases were *under* the age of three years, with 23 recoveries, or 23.23 per cent. 201 cases were over three years of age, with 77 recoveries, or 38.30 per cent.

In the first 100 cases there were 27 recoveries.

In the second 100 cases there were 34 recoveries.

In the third 100 cases there were 44 recoveries.

Hudson, G. W.: Compound Fracture of Frontal Bone, with Division of the Longitudinal Venal Sinus and Falk's Cerebri, and Loss of Brain-Substance. (*Journ. State Med. Soc.*, Arkansas, 1890, i. 13.)

The writer saw the case, a boy, four years old, who had been kicked by a mule, eighteen hours after the accident. He was in a partially insensible state, with an ugly wound across the forehead, about a tablespoonful of brain-substance lying in the wound, and but little hemorrhage. A section of the frontal bone, two inches long and one inch in width, was driven back directly into the brain. The long diameter of the fracture was transverse and the lower margin was just above the supra-orbital ridge, involving the upper part of the frontal sinus.

Under chloroform, the fragment of bone was raised, after using considerable force. This was followed by a profuse hemorrhage, which was controlled by bandaging a large pad of absorbent cotton over the wound and allowing it to remain for an hour. The flaps were carefully adjusted and closed with four or five sutures, and dressed antiseptically. The boy reacted well and soon called for something to eat. The wound was again dressed in three days and found in a healthy condition. On the seventh day two sutures were removed and there was a slight bulging of brain-substance. On the eleventh day there was quite a perceptible hernia cerebri, about the size of a filbert. On the fifteenth day it was as large as a hen's egg. This mass was cut away even with the surrounding integuments, and the wound dressed antiseptically. He was not seen again for two weeks, when the wound was found to be almost entirely healed. A strong cicatricial tissue had formed over the wound, completely protecting the brain. No cerebral symptoms manifested themselves during the treatment, and to-day the boy is perfectly well, with the enjoyment of all his mental faculties. The amount of brain-substance lost was, as near as could be estimated, something more than two ounces.

Morton, T. G.: The Pathology and Treatment of Club-Foot, especially Talipes Varus and Equino-Varus. (*Phila. Med. News*, 1890, lvii. 25.)

The records of these cases present fifteen excisions of the astragalus for congenital talipes equino-varus upon ten patients, all male except one. Five had been unsuccessfully treated in infancy or early life by tenotomy, tarsectomy, or otherwise; in four cases both feet were operated upon at the same time. Four of the patients were under two years; the others were, respectively, three, four, six, seven, fourteen, and

sixteen years old. The line of incision in the operations extended from half an inch or so above the external malleolus to near the base of the metatarsal bone of the fourth or ring toe, crossing the most prominent part of the astragalus; the tendo Achillis was always sectioned. No vessel required ligation. The peronei tendons were not involved in the operation. A few strands of catgut were inserted in the wound to secure drainage. Strict antiseptic precautions were observed before, during, and after the operation. The limb was placed upon a right-angled tin splint, and kept elevated for a day or two. Immediate union followed; the primary dressings were not disturbed before the end of the third, generally in the fourth, week. There has not been in any case a tendency to ankylosis, nor any tenderness or want of strength in the ankle as a result of the operation.

Wells, Spencer: Omental Cyst in a Child of Four Years. (*British Medical Journal*, June 14, 1890.)

The child has always had a large abdomen. Five months before the first visit she suffered from some abdominal disease accompanied by pain, but no diarrhoea. On examination the abdomen below the navel was found to be very prominent. There was dulness on percussion and fluctuation was distinct. The diagnosis of ovarian cyst was made. Three pints of fluid were withdrawn by aspiration, with great relief to the child. During the next four months the cyst gradually refilled, and the child was poorly and fretful. One year after the tapping the abdomen had become so much distended that laparotomy was performed. No free peritoneal fluid was found, but a very thin cyst-like expansion of the omentum, which was adherent in the right iliac fossa to the abdominal wall and to the cæcum and appendix cæci. The fluid was clear and watery, and measured about four pints. The cyst was relieved from its adhesion and removed, and the child made a perfect recovery.

Nota: The Radical Cure of Umbilical Hernia in Children. (*Rev. Mens. des Mal. de l'Enf.*, July, 1890.)

The rebellious nature of this condition to treatment and the liability to recurrence after reduction are well known. Desault sought to cure the condition radically by tying the hernial sac with a ligature after having completely reduced the intestine. Others have modified the operation in various ways with varying degrees of success. All bloody operations are objectionable, and the problem has been to devise one which should not be bloody, and, at the same time, should accomplish a rad-

ical cure. The author tried his method in eighteen cases, all of which were successful. The hernial sac in each operation was emptied of its contents, and held by an assistant between his thumb and forefinger. Around the base of the sac, as near as possible to the abdominal wall, three or four turns of an elastic tube are passed, the ends of the tube being secured with silk. A light cotton dressing was then applied, and by the tenth or twelfth day the sphacelated sac would fall off, leaving a small granulating wound at its base. This wound was dressed with iodoform and carbolyzed cotton, and in four or five days the wound would be completely cicatrized, and there would be no danger of a recurrence of the hernia.

A. F. C.

Coley: Prolapse of the Urethra in a Female Child. (*British Medical Journal*, November 1, 1890.)

A muco-purulent discharge was first noticed by the mother. Examination showed a small red growth at the mouth of the urethra. It was clearly made up of the mucous membrane of the urethra, protruded and swollen. It was removed with the scissors, and the spot lightly touched with the cautery. At the end of ten months there was no return of the prolapse.

Drake: Successful Treatment of Intussusception by Injections of Air. (*British Medical Journal*, July 5, 1890.)

The patient, a healthy child of seven months, was seized with pain and vomiting. She soon passed into a state of collapse, the vomiting continuing, and blood and mucus was discharged from the rectum. A sausage-shaped tumor could be felt in the right hypochondriac region. The intestine was inflated with air by means of a small bellows, when the tumor suddenly disappeared and the symptoms subsided.

Miller: Successful Laparotomy for Tubercular Peritonitis. (*Edinburgh Medical Journal*, October, 1890.)

The patient, a boy ten years of age, was admitted to the hospital suffering from periostitis of the femur, with the formation of an abscess. This was operated upon successfully. Signs of peritonitis gradually appeared, and laparotomy was at length performed and a large amount of pus removed from the peritoneal cavity. A drainage-tube was inserted, the wound gradually healed, and he was discharged in nine weeks.

Lannelongue: Craniectomy for Microcephaly. (*Rev. Mens. des Mal. de l'Enf.*, August, 1890.)

This operation was performed upon a girl four years of age,

who presented deformity of the cranium and microcephaly in its most pronounced form: Until the child was three years old she took only fluid nourishment. She did not walk, and could not hold herself up. For a few weeks before the operation she could stammer a few syllables; the saliva ran out of her mouth as in a new-born infant. She was small, scrofulous in appearance; her height was one hundred and seventy-seven centimetres; the circumference of her thorax forty-five centimetres; her bones were small; her extremities long and slender. There were no contractures nor paralyses; the general sensibility was normal; there was no increase in the reflexes, nor epileptoid trepidation. The head was small, flattened transversely, and of the scaphoid type. Prognathism was pronounced; the nose was large and aquiline; forehead retreating and very narrow. All the cranial diameters, excepting the occipito-frontal, were diminished. In a word, this was a typical case of microcephaly with idiocy.

Virchow attributes this malformation to premature ossification of the cranial sutures; but such an explanation is possible only in exceptional cases. Vogt, Broca, and Montane have shown that in young microcephalics the sutures are always fibro-cartilaginous. Broca thinks that the condition is due to faulty development of the brain, the shape of the cranium being determined by that of the brain. Bourneville, Hill, and Hutchinson have shown that the condition may be determined by various lesions, such as hyperostoses, irregularity in thickness, thinning of the bony walls of the cranium, also by sutures which are too closely united, or by fontanelles which are abnormally narrowed. Lannelongue believed that an imperfect cerebral evolution could be modified, and that a new chance could be given it for development by taking away some of the resistance offered by the cranium, especially in the region in which the brain possesses centres which exercise the greatest influence upon the correspondences of life. His operation consisted in opening the cranium along the sagittal suture, and about a finger's breadth from it, extending from the frontal to the occipital suture. The opening was upon the left side of the cranium, which was more depressed than the right side, and the portion of bone removed was nine centimetres long and six millimetres wide. The dura mater was not injured at any point; the hemorrhage from the soft parts was immediately stopped, and there was scarcely any bleeding from the veins of the diploe or the meningeal arteries. The wound was closed without drainage, the periosteum not being drawn over the fissure which had been made. Cicatrization was obtained in a few days without inflammatory reaction.

An operation was also performed upon a second case, in which idiocy was more marked than in the first. The portion of bone removed in this case was from the area occupied by the fronto-parietal suture. The dura mater was not opened, and the portion of bone removed measured fourteen centimetres in length.

The first craniectomy was performed on the 8th of May, and on the 15th of June there was marked improvement in the child's condition. She was more calm; was apparently interested in what was going on around her; laughed, played, stood alone, walked, taking regular steps, though stammering somewhat. Her nasal secretions were normal; her intelligence was progressing; she was able to eat at the table. The condition of the cranium was excellent, the wound being mobile and not adherent.

A. F. C.

Porgue: At what Age should One operate for Harelip? (*Journ. de Méd. de Paris*, August 17, 1890.)

Before establishing any rule, one should be familiar with certain anatomical and individual facts in each case. If the child be vigorous and well developed, the operation should be done as early as possible; but if it be feeble and poorly developed, it should be delayed, even though it could be done simply and rapidly. If there be double and complicated harelip, necessitating a complex cheiloplastic procedure, or interference with a projecting portion of the intermaxillary bone, one should wait until the end of the first or even of the second year, as Le Dentier has advised. If there be extreme congenital weakness, the operation should be delayed until the end of the third, fourth, or fifth year. The objection to such delay is that, the teeth being developed, there will necessarily be great deformity from their irregularities; the nose also will present marked deformity. Other contraindications to operations will obtain if coryza be present, or aphthous stomatitis or enteritis, and equally so if there be measles or scarlet fever. One should not operate during the heat of summer, nor when there is infantile diarrhoea, nor when the child is about to be weaned. In a word, the guides to a decision as to the proper time to operate should be good sense and experience.

A. F. C.

Bilhaut: New Orthopædic Corsets,—Corsets of Wood. (*Rev. Mens. des Mal. de l'Enf.*, November, 1890.)

It has always been the aim of orthopædists to obtain as solid a corset as possible with the least possible weight. The wooden corset answers these conditions. It consists of a cuirass formed of strips of wood adherent to one another and compressed be-

tween two envelopes of canvas, one interior and the other exterior. The thickness of the wooden strips is about half a millimetre. They are made of fir, are about two fingers' breadth in width, and of variable length. They are prepared in rolls the same as roller bandages. In making the wooden corset a mould of the chest must first be obtained, and upon this the corset is made. It becomes a means of extension if the mould were taken while the body was suspended with Sayre's apparatus, or by Hoffa's method, otherwise it is only a means of support. Upon the mould one must first apply the layer of canvas for the interior of the corset, and avoid the folds, the same as in applying a Sayre corset. Next the layers of wood are applied in circular, vertical, and diagonal layers, and, finally, the outer covering of canvas is adjusted. As with the plaster corset, the instrument is first moist, and hardens as it dries. When it is dry, a vertical incision must be made along the line of the sternum, dividing the corset from top to bottom. Along each border of this opening a band of leather must be secured, and this is to be punched and supplied with eyelets, so that the corset may be laced like any other corset. It should be fitted while the patient is suspended either by the head or the upper limbs. The resulting spinal elongation will have a beneficial effect, as it does in the treatment of ataxia. This apparatus is very light, its entire thickness being not more than four millimetres. It is as solid as can be desired. A layer of glue is used for setting the several layers of wood with sufficient firmness. A. F. C.

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THE SPINE IN INFANCY.

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THE great practical importance of thoroughly understanding the normal anatomy and physiology of human beings, before attempting to deal with the morbid conditions which arise in them, is now so well recognized that no preliminary remarks are needed to show how vital to all advance in clinical medicine is the proper reading of anatomical and physiological truths. In just such importance as this general knowledge should be held in respect to clinical medicine as a whole, so should a knowledge of the anatomical and physiological differences which occur in infancy and childhood, as contrasted with adult life, be held, in respect to a great and important part of clinical medicine,—namely, the morbid conditions occurring in organs and tissues during their different stages of development as contrasted with these same tissues when fully developed. There are several points in the anatomy and physiology of the new-born infant which would be better understood if the fact were borne in mind that in many respects the body at this age is more adapted to its intrauterine life and to its means of exit into the external world than to the con-

ditions which surround it in extrauterine life. We will not at present discuss the striking exemplification of what has just been said, as shown by the great proportionate size of the large, well-nourished head and upper extremities to the ill-developed, poorly-nourished thorax and lower extremities. These anatomical points so evident at birth as belonging to intrauterine life, and the peculiarities of the foetal circulation, need no comment; and we shall limit ourselves in this paper to pointing out the characteristics of the new-born trunk. This is egg-shaped, the larger end being below. The pelvis as a region hardly exists, and the thorax is very small when compared with the great abdomen. The latter is relatively immense, owing to the disproportionate development of the liver, presumably a great organ of nutrition during foetal life. A striking peculiarity is the almost complete absence of shoulders, which with the arms are relatively insignificant outgrowths from the sharp end of the egg. We shall later consider the thorax in detail, but may now mention that it is evident that its small size, its want of solidity, and the slight development of the pectoral and shoulder muscles indicate that its action in respiration must be very different from that in adult life.

The greatest breadth of the trunk is in the region of the lower ribs.

During intrauterine life, and especially at the time of delivery, great flexibility and compressibility are requisite. Respiration has not yet occurred, and the assimilation of nutriment for the growth of the body and for preparing the rudiments of future organs has been the function most prominently employed. When we study, therefore, the new-born infant, we must remember that we see it at an essentially transitional stage. Adaptations, the marked utility of which is past, still persist, and new functions are carried on with very imperfect apparatus. These general principles having been stated, we can now discuss more in detail the spine. One of the most beautiful of anatomical preparations is the cleanly-dissected spine of an infant at birth suspended in a jar of alcohol. Owing to the removal of the other parts, its shape (if there be any at this age) is lost, but it is excellent for the study of the component parts. It is a wonder of lightness and flexi-

bility. There is little bone and much cartilage and fibrous tissue. It can be twisted and bent at will in any direction. Looked at critically, it appears relatively broader in proportion to its length than the adult spine. The height of the vertebræ is relatively less and appears even less than it is, from the fact that the broad, narrow, bony nucleus of the vertebral body, which catches the eye, does not represent the whole thickness of the body, as it is embedded in cartilage.

At this early stage of development the whole column is cartilaginous, with the exception of the nuclei of the bodies of the vertebræ and those of the laminæ on either side, forming a small portion of the body, and the beginning of the arch. The time of consolidation of the bodies is not over-accurately known, but may be roughly stated to begin in the third year and, probably, to end in the seventh. A large number of observations must still be made before the march of ossification can be determined. The statements regarding this point are copied from one book to another and are often quite imaginary.

The union of these chief centres to form the body begins in the lumbar region and is first completed there; this union, however, had not taken place in the dorsal and cervical region of the child said to be three years old, used for "The Frozen Sections of a Child" (Dwight). On the other hand, in a girl of five or six years, figured by Symington, the process was found to be hardly finished in the lumbar region, and higher up seemed about the same as in the younger child. The union of the laminæ to form the spine, on the other hand, begins in the upper part of the spine sooner than in the lumbar region. Throughout the greater part they are nearly united (in some places quite joined) at birth, and the process is probably completed in the first few months of life. The proportions of the spine change considerably from an early period of intrauterine to that of the perfected adult condition. In the latter, the neck is a little more than one-fifth of the movable part of the spine and the loins a little less than one-third. In the young embryo these proportions are reversed, and at birth the change has progressed sufficiently to make these two parts very nearly equal. Aeby gives the

following table for the adult spine, showing both the absolute and relative length of the cervical, dorsal, and lumbar regions (the measurements in millimetres).

ABSOLUTE.			
	Cervical.	Dorsal.	Lumbar.
Female.....	122.9	+ 265.8	+ 190.3 = 579
Male.....	129.9	+ 278.4	+ 184.1 = 587.4

RELATIVE.			
	Cervical.	Dorsal.	Lumbar.
Female.....	21.12	45.7	32.8
Male.....	22.1	46.6	31.3

Cunningham obtained strikingly similar proportions in an average of the measurements of six males and five females.

RELATIVE.			
	Cervical.	Dorsal.	Lumbar.
Female	21.6	45.8	32.8
Male	21.8	46.5	31.7

Aeby gives the following table of the average of five infants, and Cunningham a table of three.

RELATIVE.			
	Cervical.	Dorsal.	Lumbar.
Aeby.....	25.6	47.5	26.8
Cunningham.....	25.1	48.5	26.4

We give the following table showing the results of the measurements of the spines of children by various authorities as well as ourselves. The table requires no elucidation, but we may call attention to the remarkable uniformity of observations by different men in spite of the errors incident to the personal equation of the measurements and the individual variation which doubtless exists. The relative length of the dorsal (more properly the thoracic) region throughout the table is somewhat greater than that of the adult; still it appears that, after the age of five or six years, the proportions are not far from those of after life.

Table showing Length of Spine to Sacrum.

Absolute Length in Millimetres. Relative Length. Total = 100.

Age.	Observer.	Cervical.	Dorsal.	Lumbar.	Total.	Cervical.	Dorsal.	Lumbar.
8 months...	Rasanel.	50.	100.	58.	208.	24.	48.1	27.9
6 months...	Aeby.	52.5	103.	60.	215.5	24.3	47.5	27.8
6 months...	Aeby.	53.5	107.	61.	221.5	24.1	48.6	27.5
10 months...	Dwight.	61.	125.	77.	263.	23.2	47.5	29.2
2 years' boy	Rasanel.	70.	140.	90.	300.	23.8	46.7	30.
2 years' boy	Aeby.	79.5	153.5	98.	331.	24.	46.4	29.6
3 years' girl	Dwight.	78.	162.	101.	341.	22.9	47.5	29.6
4 years' girl	Aeby.	79.9	162.	103.3	345.2	23.1	46.9	29.9
5 years' boy	Symington.	80.	170.	104.	354.	22.5	48.	29.4
5 years' boy	Rasanel.	80.	180.	135.	395.	20.3	45.6	34.2
6 years' boy	Symington.	80.	175.	106.	361.	22.2	48.5	29.3
9 years' girl	Rasanel.	85.	195.	150.	430.	19.8	45.4	34.9
11 years' boy	Aeby.	91.	218.7	153.5	463.2	19.7	47.2	33.1
13 years' girl	Symington.	95.	220.	136.	451.	21.5	48.7	29.1
16 years' girl	Aeby.	100.	221.8	151.	472.8	21.1	46.9	31.9
16 years' girl	Aeby.	107.5	229.5	152.5	489.5	21.9	46.9	31.1
17 years' girl	Dwight.	113.	250.	161.	524.	21.5	47.7	30.7

A great deal has been written about the curves of the spine in new-born children, and of their appearance in the embryo. Much of this literature is a monument of wasted ingenuity. The truth is that, at birth, when the child is lying in what may be called its normal position,—that is to say, on its side, with the head flexed and the thighs drawn up,—the whole spinal column presents one long concavity from the atlas to the coccyx, the front of which is subdivided into two by the slight projection of the promontory of the sacrum. Above this there is a generally tolerably-regular concavity. The head can be thrown back so as to make a slight convexity in the neck, and by bringing the knees against the table (the baby being on its back) the lumbar region will spring forward; but the former of these positions is rather unnatural, and the latter impossible without assistance. The concavity of the thoracic curve remains to be discussed, and this is the only one of the curves above the sacrum that can be said to have any real existence at this age. When, however, we analyze more carefully the existence of this curve, we begin to doubt whether it is after all so very real, for, though the sternum and ribs have some retaining influence, it is possible by bending the body back-

ward to obliterate this curve also. We can then consider the part of the spine above the sacrum as essentially a fibrous and cartilaginous rod with a number of separate disks of bone embedded in it at different places. The extent of the movements possible at birth, both in the dissected spine and in the whole body, is very remarkable as is shown by these few experiments. The first was on the body of a female child, at birth large and well nourished, the abdominal viscera having been removed. It was very easy to bend the head back so as to touch the buttocks. The head and extremities were then removed, the ribs cut near the junction of the cartilages, and the spine and pelvis roughly cleaned. It was then possible by some straining to bend the spine backward so that the atlas and coccyx met. It was, however, easy to bend it backward so as to make an arch, the atlas and coccyx resting on the table. It was noticed that the middle part of the spine was the most flexible, the dorsal cavity of after-life being easily changed into a convexity. The lumbar region appeared to be more pliant than the cervical. The point of greatest motion was apparently between the eleventh and twelfth dorsal vertebræ. The whole spine—and each of the cervical, dorsal, and lumbar regions—bends forward with about the same readiness that it does backward. It may at first appear surprising that it does not bend very much more when, as already said, we look on flexion as the normal position of the infant; but it must be remembered that this effect is largely due to the great head which bends forward on the spine, and that the above statement as applied to the spine after the head has been removed is more remarkable than appears at first sight. Lateral motion is very free, though it is not quite unmixed with torsion. The atlas can without effort be brought to the level of the sacrum either to the right or left. The bending is pretty regular through the different regions above the sacrum. In torsion, the sacrum being fixed, the spine could be twisted so that the atlas looked backward, and could even, with some straining, be carried through more than a half-circle. From rather crude measurements it appeared that, under the above conditions, the twist in the cervical region was 45° , in the dorsal region 90° , and in the lumbar region

45°. Experiments were then made on the intact body of a girl thirteen days old. The head could easily be made to touch the heels and could be bent so as to fit into the middle of the back. Forward flexion appeared little greater than that of the adult, which is to be accounted for by the space taken by the head. When the pelvis was fixed, the head could be rotated about three-quarters of a circle. The spine, thorax, and pelvis were then made into a ligamentous preparation, and the spine could then be bent backward until the atlas was almost within an inch of the pelvis (it is to be remembered that, unlike the last preparation, the sternum in this case was still in place).

The spine could be flexed so as to make the atlas touch the upper end of the sternum and the pelvis the lower. Lateral motion was easy until it reached such a degree that the ribs on the flexed side came in contact. When the pelvis was fixed, the spine could be rotated easily 90° without the atlas taking part.

In a female child of ten months it was found that extension was no longer so free, and it required a strong pull to make the head touch the nates. The dorsal region, however, could still be made concave behind. Flexion was free, especially in the lower part of the lumbar region, where the pelvis and legs could be swung forward. On rotation the head could be turned 90° without using the joint between the atlas and axis. In a male child of the same age extension of the spine was found to be still more restricted. An important factor in the production of the curves in the cervical and dorsal regions appears to be the pull of the muscles, as will be presently described. The dorsal curve appears to be a permanent condition of a part of the general curve in which the keel of the body is laid down. As soon as the muscles of the back of the neck contract so as to raise the head from the chest, the front of the neck becomes convex, and finally this becomes the habitual position, but, as Symington has pointed out, this cervical curve never, properly speaking, becomes consolidated, for it can always be obliterated by a change of the position of the head. The production of the lumbar curve is more complicated. If an infant be laid on its back on a table, the knees are raised and fall apart; if

they are brought together and forcibly pressed down, the lumbar region will spring up from the table and the beginning of a lumbar curve will appear. It is supposed that this is caused by the shortness of the ilio-femoral ligaments, which, when the thighs are brought down, flex the pelvis, throwing the promontory forward. As the child begins to stand, the body is inclined forward, and when this is straightened by the muscles of the back the same thing occurs, for, of course, it is unimportant whether the legs are extended on the trunk or the trunk on the legs. The credit of this explanation has generally been given to Ballandin, but it appears to really belong to Cleland.

This curve, therefore, is first observed when the child is a year or so old, but it is not until some time later that it is habitually present, and we are not prepared to say when it actually occurs. It can be obliterated up to adult life and we rather suspect in many cases even later. The influence of the muscular system is important not only in forming two of the spinal curves, but in maintaining them afterwards. We are convinced that the greater rigidity of the body that is found after puberty is largely dependent on the muscles. The tonicity of the muscles has a great deal to do with retaining the curves of the spine and in limiting its movements. Many of the feats of contortionists are due to this power of relaxing antagonistic muscles, and, as a general rule, we find in children a greater proportion of muscle to tendon than in adults. It is, therefore, due more to the want of power to relax the muscles than to the lack of a peculiar formation of the bones and joints that children cannot perform many of these feats. The importance of the muscles in distortions is immense. The spine of a child is flexible in many ways, and the unruly pull of a muscle may easily produce a lasting effect. Not only should the muscles have strength enough to maintain the figure without conscious effort, but their action should be symmetrical on the sides, and should also have a proper relative force before and behind. The importance of light gymnastic exercises is now so generally understood that we need do no more than allude to it. What, however, is of great practical clinical interest in connection with the anatomical

and physiological facts concerning the spine, spoken of above, is the beautiful way in which they emphasize the value of this preliminary knowledge in the study of preventive medicine.

What better illustration can be had of the importance of following nature as closely as possible in its methods of developing young human beings so as to perfect their various functions to the fullest extent? In the extreme flexibility and slow development of the spine we see nature distinctly pointing out to us that here is a function which should be held in abeyance and brought into use slowly. The young infant, at the very age when the superincumbent weight of the large head is the greatest, and would greatly exaggerate the physiological spinal curves which come from sitting and standing, is in a state of nature unable to sit and stand. The progress of the spinal development in the latter part of the first year, and again in the third year, corresponds closely to the periods when the infantile spine is called upon to exercise its function for sitting and standing. Artificial methods of making the young infant, at a period of development when the spine should be comparatively straight, assume a sitting posture should then be deprecated. It has happened to us, in a rather extended practice among children, to meet with numerous instances where both parents and nurses were anxious to have the infant, at a very early age, sit for quite a long time strapped in small chairs. In like manner the same infants were encouraged to stand and walk long before the apparatus for locomotion was ready for use. We may ask how many of these individuals developed a spinal curvature in later childhood? Possibly the risk, in a perfectly healthy child, may be small, but we often cannot, in early infancy, determine which individual may become rachitic; and where rachitis is present, exaggerated physiological curvature may soon be continued to torsion, and pathological curvature, especially of the lateral type, and even of the posterior variety, is apt to occur. We should then, in our advice as to the proper physical management of the early years of life, be guided by our knowledge of the normal average development. Free play for the infant's legs, when lying on its back in bed, should be a point to be noticed and considered, since we know that pressing

down the legs causes strain and curvature in the dorsal region. With our knowledge of the great lateral flexibility of the infant's spine, we should also advise the nurse not to continually hold the infant on one side. Symmetry of development and free opportunity for natural movement should be our aim in the management of the infant from the very earliest period of its existence. Our knowledge of the great flexibility of the growing spine provides us at once with a most valuable means for treating lateral curvature in childhood, and we are continually seeing the benefit of encouraging the promotion of elasticity by moderate pressure and bending. A case which is now under observation in our service at the Infant Hospital beautifully illustrates the truth of what has just been said. A feeble, rachitic, female child, nineteen months old, was presented for treatment with a marked right dorsal lateral curvature, combined with decided rotation, following the type of the worst adult cases. The condition, when first seen, was so exaggerated that in an adult it would have been extremely noticeable.

The condition seemed to be purely the result of habit: the patient having been made, when very young, to sit up beyond the limit of endurance of the still undeveloped bones. The treatment, instituted by Dr. R. W. Lovett, who took charge of the case, was based entirely on the elasticity of the spine, which exists at this early age, and consisted simply of manipulation and recumbency, resulting in a very great degree of improvement both as to the curvature and the twisting. Dr. Lovett also tells us that in his surgical out-patient clinic at the Children's Hospital, the improper treatment of the young subject's spine, such as in babies, for instance, is seen where they are carried altogether on one side, is well recognized as playing a great rôle in the etiology of certain forms of spinal curvature. We have ourselves seen in this clinic a number of illustrative examples of this class, and have been much impressed with the important relation which anatomical knowledge bears to clinical prophylaxis, diagnosis, and treatment.

The surface anatomy of the spine is of much importance in the adult, and must not be overlooked in the child, which presents striking differences. In the first place, a prominent

feature in the adult, especially in a muscular male, is that a depression is found wherever the skeleton shows a prominence, owing to the development of the muscles. Thus the skeleton shows a ridge of spines in the middle line of the back, with a valley on either side; but, in the flesh, we have a median furrow between two swellings formed by muscular masses. In the infant this is not the case (excepting perhaps in the neck), but the back is rounded; later more flattened, and the line of the spinous processes, far from being in a depression, is rather prominent. This is the more remarkable as, when we examine the dissected spine from behind, we find it very different from that of the adult. In the infant the laminae look more directly backward, and their function in the median line is marked by knobs and ridges very different from the spines of the adult. Up to a year, or perhaps eighteen months, the proportions are not very different, but the spine at three shows that a great change has occurred, for the spines now stand out in a prominent row, and present very nearly adult proportions. The greatest difference is in the dorsal spines, which are relatively broader at their points and less gracefully drawn out than in the adult. The bodies of the vertebræ still are less deep, and therefore the relative position of the spines and bodies show less difference than might be expected. For example, the tip of the spinous process of the seventh dorsal vertebra in the adult reaches down to about the lower border of the body of the eighth vertebra, or the head of the ninth rib. At three it goes very nearly as far, though its shape is not the same. At six or seven the spine has made still further progress to the adult proportions. By the end of the second year the back of the living child is not only flatter and broader (the results of continuous changes), but there is the appearance of the median furrow, and at five or six the differences in this respect from the adult are not marked. It is barely possible to count the spines in the infant and young child, and at three and four years it is not very easy, though less difficult than in the adult.

A source of error is the name "prominens" applied to the seventh cervical vertebra, which naturally suggests that its spine is the most prominent in the back of the neck. This is

not usually the case. The first dorsal spine is the most prominent in that region. The atlas has no spine at all; that of the axis is thick and prominent, perhaps relatively less marked in the child; the third and fourth spines are very small; the fifth not much larger; but the sixth projects more, and the seventh is said to be usually the first prominent one. He who trusts, however, to this rule is very liable to error, for the relative size of the lower cervical spines varies much. The sixth may be the first to assume prominence, and the seventh and first dorsal may exceed it but little. The advantage of the child, say of three years and upward, over the adult is that the greater softness of the tissues allows us to feel more deeply in through the furrow of the neck, and, having recognized the axis by alternately flexing and extending the head, to count the cervical vertebræ in order. If it should be in any case absolutely impossible to feel the third and the fourth, it is better to allow a certain space for them and call the next one the fifth, and so on, than to assume arbitrarily that a certain one is the seventh. Confirmatory evidence may be gained from the height of the sternum, to which point we shall return. It is a rather remarkable fact that we have found at all ages, from birth upward, that the spine of the fourth lumbar is (as in the adult) on a level with the highest point of the crest of the ilium. Under certain circumstances this might advantageously be used as a starting-point to count from. At birth the spinal cord descends only the space of about one vertebra lower than in the adult. The third lumbar spine, which should mark its termination, may not be easily recognized under three years, but the correspondence of the top of the ilium with the fourth allows its position to be estimated. It might be desirable to know how far the cavity of the spinal dura mater descends inside the sacrum. Recent investigations by Dr. R. Wagner show that in children under a year old it ends usually near the top of the third sacral vertebra, which makes it a little lower than its usual termination in the adult. The point on the surface corresponding to this could be approximately estimated without any definite landmarks.

(To be continued.)

A CASE OF ADHERENT PERICARDIUM ASSOCIATED WITH ACUTE ARTICULAR RHEUMATISM, CHOREA, AND OLD MITRAL INSUFFICIENCY.

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EDNA K., aged three years and five months. Her father has had acute articular rheumatism.

Her elder sister had rheumatism at the age of seven and of ten years. After the second attack of rheumatism she suffered from chorea, which lasted six weeks and was not caused by fright. Since then she has had two other attacks of articular rheumatism, the last recurrence being associated with endocarditis. She is now seventeen years old, poorly nourished, anæmic, with mitral insufficiency.

Edna K. had, previous to November, 1890, two attacks of rheumatism. The second attack occurred at the age of two years. At that time the articular symptoms were slight, but were associated with endocarditis.

The disease recurred for the third time about November 15, 1890. For the first nine days the child was feverish, with pain in back, neck, and over the heart. There was tenderness and puffiness about the instep, ankles, and wrists. The child evidently had old mitral insufficiency, as the first examination revealed a loud, apical, systolic murmur.

November 24.—Child extremely pale; tongue clean; some præcordial distress; pain and swelling in instep of both feet. Patient found sitting in bed. Pulse 140, soft and regular; temperature 99°. *Heart:* apex-impulse in fifth interspace in the left nipple line; dullness from third to fifth rib, and from sternum to the left nipple line. A loud systolic murmur heard with maximum intensity at point of apex-impulse; same murmur heard also in the left axilla and over scapula; same murmur audible in second left interspace.

November 25.—Pulse 120; temperature 101°; respiration 42. Pain and swelling in both wrists.

November 26.—The articular symptoms have disappeared; pain over heart; child restless and delirious during the night; complains of choking; cardiac dyspnoea.

November 27 to December 14.—During this time child has been under daily observation. The pain and swelling in the joints, instep, ankle, knee, and wrist would appear, remain a day or two, and disappear. Temperature varied from 99° to 101°; pulse from 140 to 160. Child slept badly; appetite poor. She emaciated continually and grew more and more anæmic.

December 15.—Appearance of chorea. For the first time I noticed twitching of the eyebrows and corners of the mouth and jerky involuntary movements of the hands; knee-jerks active. The child very emotional and complained much of choking and shortness of breath. *Heart:* apex-impulse diffuse, strongest in sixth left space, one inch outside nipple line; dulness from third to sixth space from sternum to one inch outside nipple line. Systolic murmur loudest in sixth left interspace one inch outside nipple line. First sound could be heard with this murmur; second pulmonic sound accentuated. Cardiac hypertrophy had evidently rapidly progressed. *Liver:* two-fingers' breadth below ribs; spleen not felt; nothing in lungs. A small movable lump noticed in left trapezius muscle, near its occipital insertion. Antipyrin, gr. iv. t. i. d.

December 22.—During last six days child has failed rapidly in strength and flesh; is peevish and emotional, and has frequent attacks of choking. The choreic movements have increased very much; child is unable to thrust out its tongue or feed itself; speech unintelligible. Continual twitching of eyebrows and face; violent involuntary movements of hands and feet; slight choreic movements observed in sleep. Pulse 140, regular; temperature 99°; respiration 40. Cardiac symptoms unchanged. The antipyrin will quickly quiet the choreic movements, and after taking it the child generally falls asleep. Pulse not apparently weakened by its administration.

December 23.—Choreic movements are increased in violence; no pain or swelling in the joints.

December 24.—Pulse 120; respiration 48. Child very

emotional; chorea about the same. The antipyrin has only a temporary effect.

December 30.—A very noticeable amelioration of the choreic symptoms has taken place; only slight twitching of face and left hand observed; no articular pain or swelling. Pulse 146; respiration 28; temperature 98°. Heart beats violently and painful at times; no change in cardiac signs; appetite improved.

January 2, 1891.—Condition same; much cardiac dyspnœa.

January 3.—Appearance of pericarditis. Temperature 99°; respiration 40; pulse 160. Child very pale and collapsed; refuses food; passed a restless night; sharp pain in præcordial region. Face and eyelids puffy; instep and ankles œdematous; no tenderness nor pain on motion in these joints. The œdema of the feet was evidently due to cardiac weakness. Over the entire cardiac area—but loudest in third left interspace, close to the sternum—a rustling, rubbing sound is heard, a pericardial friction-sound; apical systolic murmur unchanged; apex-impulse very strong; no tenderness nor retraction of chest walls; very slight twitching of face and fingers of left hand. Urine acid, sp. gr. 1030; no albumen; large amount of urates. Antipyrin stopped.

January 4.—Pulse 160, very weak; temperature 99°; respiration 41. The child is of an ashen pallor; lips white. She is very restless, choking with dyspnœa; has vomited three times in twenty-four hours, each time after taking food or medicine. Pain over heart; takes food badly; has a slight cough; œdema of feet increased; slight twitching of face and left hand; throbbing of the vessels of the neck. *Heart:* pericardial friction-sound heard all over the cardiac area; intercostal spaces depressed; no increase in cardiac dulness; violent action of heart; no thrill felt.

January 5.—Extremities cold; no pulse felt; rapid tumultuous action of heart; great dyspnœa. Child continually utters sharp, piercing shrieks. Death at 10 P.M.

Autopsy made seventeen hours after death by Dr. W. H. Bergtold.

Body.—Emaciated; rigor mortis not present.

Brain.—Not examined.

Thorax.—Each lung free ; right pleural cavity contains about six ounces of slightly bloody serum.

Pericardium.—Parietal pericardium firmly adherent to anterior chest wall ; adherent to anterior surface of the heart by recent, easily-broken-down adhesions ; some firm old adhesions between heart and parietal pericardium. The pericardial cavity contained about five ounces of clear serum. Visceral pericardium covered by small tags of organized lymph. Both visceral and parietal pericardium much thickened and vascular.

Heart.—Very large ; weight, eight ounces. Cavities filled with dark, clotted blood. Cavities dilated, and all of the muscular walls hypertrophied. The endocardium of the left auricle opaque and thickened.

Mitral valve.—Both leaflets thickened ; post-leaflet retracted by shortened chordæ tendinæ ; old vegetations along edge of mitral leaflet ; no deposit of fibrin upon them.

Aorta.—Somewhat dilated just beyond semilunar valve.

Lungs.—Right lung universally œdematous ; mucosa of bronchial tubes reddened and injected. There was consolidation of lower lobe of left lung. On section, the cut surface resembled muscle ; consistency firm ; does not crepitate ; is dry and airless ; dark-purple color. Lobe could be reinflated by a blow-pipe in bronchus ; bronchial mucosa injected. The consolidation was due to pulmonary collapse, possibly from pressure of enlarged heart and from weakness of respiratory muscles.

Spleen.—Normal in size, but hard, firm, and dry ; capsule somewhat thickened.

Intestine.—Mesenteric lymph-nodes enlarged.

Stomach.—Coats thickened ; mucosa pale, covered by a layer of thick mucus.

Liver.—Large, firm, pale, somewhat mottled, and apparently fatty, with new connective-tissue growth. Cyanotic liver.

Kidneys.—Normal.

The case is of extreme interest.

The family history reveals a marked rheumatic taint, the father having suffered from one attack of acute articular rheumatism. It is to be noted that the disease displays greater intensity in the elder daughter, who suffered from four attacks of rheumatism, from endocarditis, and chorea.

Finally, the younger daughter succumbs at the age of three and a half years, exhibiting in her life four phases of the rheumatic diathesis,—articular pain and swelling (three attacks), endocarditis, pericarditis (two attacks), and chorea.

Dr. Cheadle has shown the significance of heredity, demonstrating, from the statistics of the Great Ormond Street Hospital for Sick Children, that the offspring of rheumatic parentage are five times as liable to rheumatism as the children of non-rheumatic parents.

I searched in vain for the rheumatic nodules so graphically described by Dr. Cheadle, and which I have myself often seen when clinical clerk at the Great Ormond Street Hospital, but save one small lump—probably a lymph-nodule—at the insertion of the left trapezius muscle, in the occiput, no trace of them was to be found. This I deem remarkable, as they are supposed to be intimately allied with the vegetations upon the valves in rheumatic endocarditis.

Throughout the whole illness the articular symptoms were slight, often disappearing for four or five days; there was no sweating, nor throughout the disease did the temperature rise above 102°.

The duration of the disease was fifty-six days. Chorea began on the forty-third day; the muscular twitching and inco-ordination were fairly severe. At this time the general prostration, anæmia, and dyspnœa were steadily progressing.

However, the chorea caused no increase in the pyrexia, and the joint symptoms had entirely disappeared.

Pericarditis appeared on the fifty-third day of the disease. Curiously enough, it did not increase the chorea; on the contrary, the twitching and inco-ordination had almost ceased at its advent.

The autopsy showed a thickened pericardium, adherent to the anterior chest wall,—old pericarditis externa.

Between the visceral and parietal pericardium were bands of lymph, some old, and some recent. They undoubtedly permitted a certain amount of cardiac movement, as shown by the varying position of the apex-impulse. The cause of death I took to be the recent pericarditis lighted up on the seat of an old inflammation.

As to the treatment, salicylates, alkalies, heart-tonics, and anodynes gave no relief.

The case illustrates the virulence and varying phases of rheumatism in children. As Dr. Cheadle aptly says, "In childhood arthritis is at the minimum, endocarditis at the maximum."

A RECORD OF THE RESULTS OF FIVE HUNDRED AND TWELVE CASES OF INTUBATION OF THE LARYNX OPERATED ON BETWEEN 1886 AND THE PRESENT YEAR.*

BY J. MOUNT BLEYER, M.D.

New York City.

IN collecting the cases which to-day I have the honor to present to you, it is my object to add another mite of evidence to that already adduced by other observers, to establish the fact that intubation of the larynx is a thoroughly feasible and practical procedure, possessing sufficient advantages over tracheotomy to make it one of the classical operative measures in throat surgery.

Four years ago intubation was first spoken of in a serious way. It had been known in a crude form to the surgeons of a generation ago. In the months between the winter of 1886, when I first began to experiment with inserting tubes into the larynx, up to within a few weeks ago, I have had the good fortune to make five hundred and twelve operations, of each of which I have kept a careful record, a *résumé* of which I lay before you for thoughtful consideration, thorough analysis, and searching discussion.

In this connection, before proceeding further, it may not be out of place to briefly dwell upon the results obtained from tracheotomy and compare them with the results obtained from tubing of the larynx.

*Read before the Tenth International Medical Congress, held at Berlin, August 4, 1890, before the Section of Laryngology.

The German authors record five thousand seven hundred and ninety-five cases of tracheotomy, showing thirty-one per cent. of recoveries, while the hospitals of the same country, out of three thousand and sixty-three cases, have but thirty per cent.

The most extensive and complete statistics on the subject were made by the French surgeons, who have tabulated nine thousand two hundred and forty-two cases, nearly one-half of the entire number of tracheotomies of which to my knowledge there is any record, with twenty-four per cent. of recoveries. As these are probably compiled from the records of private and hospital practice, the low percentage of success is readily accounted for. Of three hundred and twenty-seven cases of tracheotomy performed for croup in the Boston City Hospital, from 1884 to 1887, twenty-nine and one-half per cent. recovered. The total average of recoveries out of twenty-one thousand eight hundred and fifty-three cases operated on, compiled from all the statistics available by Dr. Robert W. Lovett, of Boston, places the percentage at twenty-eight. The five hundred and twelve cases operated on by me by substituting intubation for tracheotomy, like those to which I have just referred, were done for croup and diphtheria; thirty-seven per cent. recovered.

This, if results teach us anything at all, certainly gives intubation the right to claim the thoughtful attention of the profession at large. The history of intubation of the larynx requires but a few moments to relate.

It is, as I have already indicated, by no means a new operation. Ever since the days of Hippocrates it was known to the practitioners of the healing science, many of whom introduced tubes into the larynx for various purposes, but it was not until the close of the last century that we find any scientific account of the objects and methods employed for placing a tube into the head of the respiratory canal to stem disease.

I refer in particular to Desault, who about that time attempted to pass a catheter into the œsophagus. It is remarkable to note, and mainly because it so clearly indicated the tolerance of the larynx for the retention of foreign bodies, that this tube slipped into the larynx, where it remained fixed,

causing so little disturbance that, even so clever a surgeon as Desault was, he remained ignorant of this condition until by mere accident he injected some fluid through the tube. This unlooked-for casualty caused the thoughtful observer to continue his researches, and he soon loomed up as an evangel of catheterization of the larynx, especially for stenosis resulting from extrinsic causes. It cannot be said that his success with this new operation was very great, for we are told that he abandoned catheterization and returned to the older operation of tracheotomy. Imbued with the idea that instruments could easily be inserted into the larynx, Bozzini invented a crude apparatus for illuminating the throat by means of artificial light. He, too, had little success, and half a dozen of his followers, who continued in the field indicated by him, after exhaustive experimenting gave up the idea. It was because the principle upon which Bozzini worked was wrong that illumination fell into disuse. The new era of laryngoscopy is marked by Czermak's discovery of the laryngoscope.

I need not dwell upon the debt that laryngology owes to Czermak, for we all know the valuable assistance we have received from his discovery. With this adjunct the larynx became a partially open field, and diseases that formerly were beyond the most careful observer now became amenable to absolute diagnosis and treatment, and further proved that the instrumentation of the larynx was absolutely feasible.

We now come to Loiseau, who, as early as 1857, introduced catheters into the larynx. He had two objects in view,—the one to introduce medicines to the parts, and, on the other hand, to apply friction for the removal of false membranes. In the following year, while Czermak was engaged upon the laryngoscope, Bauchut used and placed cylinder tubes into the larynx for the relief of croup, but, unfortunately, out of the seven cases he operated upon, five died, while in the remaining two tracheotomy was resorted to. Speaking of this method of treatment, Trousseau says, "It is not impossible that tubage may be of some use in certain forms of acute and chronic disease of the larynx, nevertheless the experiments of Bauchut do not as yet establish its importance in croup." At the time Trousseau was regarded as the highest authority in France,

and his criticisms had much to do with shelving Bauchut's claims.

Dieffenbach, of Berlin, is said to have been the first to apply intubation. He used a rubber tube, but, like the observers before him, soon discarded the operation. In 1880, Dr. McClean, of Glasgow, used catheters for impeded respiration. He reported several cases, and subsequently Weinlechner, of Vienna, strongly advocated the use of tubes for the introduction of medicaments and stenosis.

To Dr. Joseph O'Dwyer, of New York, belongs the credit of reviving this long-discarded operation, and so perfecting it that to-day it is largely adopted and practised by the profession all over the world. Thousands of cases have since been operated upon by O'Dwyer's method, with a percentage of recoveries that more than favorably compares with the best results from tracheotomy. He began his experiments in 1883, but it was not until 1885, the 21st of February, that Dr. Brush, president of the West Chester County Medical Society, made mention of the work that had been done by Dr. O'Dwyer, in an article which he published in the *Medical Record*. He described three cases of intubation which he had witnessed Dr. O'Dwyer perform in the New York Foundling Asylum, and spoke in enthusiastic tones as to the future of the operation.

Dr. O'Dwyer's first article on intubation was published August 8, 1885. Since then the literature on the subject has ramified in many directions and in our medical journals.

Statistical records, too, have been growing steadily, and to-day we have sufficient number of cases observed by the most competent operators from which we feel safe in claiming that intubation of the larynx has passed beyond its experimental stage.

The largest statistical record of collected cases is the one published by Dr. Dillon Brown, of New York, July 23, 1887, in the *Medical Record*. This statistical record shows eight hundred and six cases, with two hundred and twenty-one recoveries, equal to 27.4 per cent.

Many other operators have since then given the profession their experience with this operation.

In presenting my report of five hundred and twelve intu-

bations before this body, I do not intend to bore you with lengthy descriptive cases, but bring before your notice facts which my experience has taught me with this operation during the years of 1886 to 1891.

I cannot dwell too strongly upon the necessity of making a forced or normal laryngoscopic examination before entering upon the operation, and for reasons which I shall briefly hereafter describe.

I feel that I owe a great deal of my moderate success to paying close attention to all the various details of the operation, and to this I shall specially refer as I go along.

WHY LARYNGOSCOPY SHOULD BE PRACTISED BEFORE AND AFTER INTUBATION.

With such means at my disposal, I see the position which the membranes occupy, and the general conditions present, so that if membranes are in the way of the operating field they may be removed, and not pushed before the tube downward into the trachea. Forcing down the membranes before the tube, which is so much practised, is the rule and not the exception.

In this manner the differentiation and diagnostication of other laryngeal diseases may be made out at the same time, and the extent of the diphtheritic or croupous lesion seen.

THE METHODS OF MAKING A FORCED LARYNGOSCOPICAL EXAMINATION ARE READILY UNDERSTOOD.

Forced laryngoscopy is performed by means of my tongue-tractor, gag, and a mirror. This tractor is an instrument devised by me for drawing out the tongue; this leaves the field of vision and course clear for the operator.

In children under five years of age it will be found most convenient, without losing any time, to envelop the child's body and arms with a strong towel, pinned closely about them, and then place it upon an assistant's lap, who takes the legs of the patient between his knees and holds the body well and firmly down upon his lap with the left arm and hand, while with the other over the child's forehead its head is pressed

backward against the chest, and thus its attempts to turn it from one side to the other are resisted. The mouth is now opened by means of the gag; at this stage of the examination a mild solution of cocaine is employed, with which the pharyngeal and laryngeal surfaces are sprayed, or without the use of cocaine, as I often do when the examination is of short duration, as in the ordinary cases for inspection purposes. The examiner passes the tractor down, guided upon the forefinger of his left hand, and secures the base of the tongue, which, being drawn upon, favors partial elevation of the larynx. The tractor is to be drawn upward, outward, and downward. The downward motion depresses the tongue.

Often a very common difficulty is met with in the position of the epiglottis, as it is more or less depressed, overhanging the larynx, or compressed and rolled together at its sides. By forcing and steadying the epiglottis against the base of the tongue, this difficulty is nearly obviated, and the larynx and neighboring parts may be viewed and treated.

The examinations of the larynx can be made at any time during the wearing of the tube, in order to see the same, or to guard against any sudden or unforeseen circumstances, and thereby gain an immediate diagnostic point.

For purposes of illumination, where gas cannot be obtained, any lamp which gives a bright, steady light will suffice, and one practised may obtain a good image even with a candle in a bull's-eye lantern, or with a carriage lamp.

The degree of success will depend upon the skill and management of the laryngoscope by the examiner. The No. 2 and No. 3 laryngeal mirrors are the proper sizes.

The daily extraction of the tube.—In many of my last cases I have followed this rule. This was done for the purpose of removing the accumulation of loose membranes, tenacious mucous pus, etc., which might block up the tube or the pharyngeal and laryngeal surfaces. Often the child has not the power left, from repeated attempts, to expectorate or cough up these materials. After the employment of this measure it was found that the little patient was helped to rid itself of a large amount of blocking poisonous *débris*. When the tube has been extracted, irrigate the posterior nares, pharynx,

larynx, and entire surface with a mild solution of bicarbonate of sodium, half an ounce, to fourteen ounces of lukewarm water. Half an hour later food is offered. I have then seen them take it ravenously. If I found any difficulty at this stage, the stomach-tube was at once applied.

Another, and I can say a very good, way of removing the tube, one which I have largely adopted, is done by using the forefinger of the left hand; to do this, place your gag in position, have the assistant hold the head in the usual position, steady the larynx with the right hand, and, pushing it up, then reach into the glottis with the two forefingers, catching the head of the tube between the tips of the fingers, holding it as fixed as possible and steadily withdrawing it. It requires but little practice to make one an expert with this method.

I advise wherever this method of extraction can be practised it should certainly be given a preference. Long and thin fingers are the best.

I often observed, in cases where the tube was incrustrated, several trials were necessary for its removal, and the forcible opening of the forceps before their engagement into the opening of the tube resulted in lacerating the larynx in its various parts. Many such cases have come under my treatment within the last two years. Fifteen of them have developed into permanent lesions of the larynx.

This method, too, is not without its obstacles. The epiglottis in some children is often rolled upon itself, which is a hindrance to some extent. It often closes over the tube spasmodically during intubation and removing.

To overcome this during the introduction of a tube, the extreme tips of the fingers should be passed into the larynx, seizing the edge of the epiglottis forcibly and slipping the finger under it, and thus holding it against the base of the tongue.

When difficulty in removing a tube occurs for any cause, such as the covering of the head of the tube by incrustation, spasm of the base of the tongue and constrictors of the larynx, etc., it is easily overcome by the tongue-tractor and anæsthesia.

An assistant steadies the head and larynx while the operator

places the tongue-tractor in position, thus drawing the tongue forward, slightly upward, then downward. The assistant holds the tractor from below, while the operator then removes the tube under the laryngoscopical mirror by forceps or otherwise.

I have made it a rule to remain with my patient for at least an hour after the daily or final removal of the tube, to watch for tendencies to stenosis; and in cases where stenosis is not so urgent, to wait for some hours before reintroduction of the tube is again tried, as in a large number of cases I have found that the tube had performed its service after the second, third, or fourth day.

At times, after deciding to remove the tube for good, it may be found necessary to intubate again. This has occurred to me in seven cases after the fourth day. The longest that the tube remained again after the second introduction in the larynx of the seven cases here cited was ten days longer, and in seven cases after the seventh day. I must not forget to mention that I invariably decline to venture a prognosis in any case until fifty hours have elapsed after the operation, for the very good reason that I observed that patients show a tendency to recover or die between the third or fourth day after being operated upon.

Dangers of frequent administration of large quantities of fluids.—Great danger is to be anticipated if the patient is allowed to partake of inordinate quantities of fluid for which they evidence a strong desire.

This is especially the case, as I have observed, in children between the ages of six months and three years who have not yet acquired the power of speech. When fluids are placed within the sight of these patients, they will make some sign which by the nurse is generally interpreted to mean that the patient desires to drink, not to quench the thirst, but to relieve the feeling of the tube in the throat, the membranes, or other causes which the patient imagines can be removed by large draughts. In five cases I saw death result from distention of the stomach from fluids, thus mechanically obstructing the heart. Therefore it would be well in all cases to make a careful examination of the stomach—in fact, the entire epi-

gastric region—before as well as during the time the tube is *in situ*.

Before I had made this observation, while intubating vomiting occurred in many cases, thereby complicating the operation and decreasing the chances of a successful issue. To avoid annoyance from this source, it is always well to caution the nurse or family. Teaspoonful doses of water and other fluids between the feeding-hours are all that should be allowed.

I have little to say about treatment beyond what I have already said about irrigation and the observation about the minute points. I have used with the best effect calomel in half-grain doses every hour, stimulants and feeding.

A very good way to administer food is by placing the patient upon the nurse's lap in a recumbent position and feeding through a nursing-bottle with such fluids as water and milk; shaved ice or ice-cream may be given in the natural way. I supply the system with fluids and semi-solid food mostly by the stomach-tube. The reason why feeding by the stomach-tube should be adopted is to avoid irritant substances entering the bronchi and tube. Water can be allowed to be taken whether it passes through or not. It is necessary that the intubated children should cough and expel whatever materials are lodged in the tube and air-passages. By feeding them without the stomach-tube you will certainly stop up the tube and favor *Schluckpneumonie*, thereby complicating every case.

The procedure of thoroughly irrigating the mouth, pharynx, and larynx, as herein described, has been found to act most beneficially in all cases, as then the child does not feel the want of fluid so much, but only has a desire to rid himself of the constant tenacious material which is always lodged in the passages during such a disease.

Inhalation of steam is also to be recommended.

Selection of the tube in every case.—This depends more upon the judgment of the operator than upon the age of the child, as the size of the larynx differs very often at the same age. It will be found that a larger tube has to be inserted than the indication shows at the age. I generally pass the tube of correct size, and, if coughed up for no other cause, introduce the next larger size.

A good plan for those who practise intubation is to have more than a single set of tubes on hand, for, otherwise, if one of the set is lost, that is generally the tube most required when least expected. Carry in your intubation bag two of each size, so that you can at any moment replace any of the missing ones. Also, it is highly necessary to have on hand a few with a larger lumen. These ought to accompany every intubation.

Whenever loose membranes exist in a case, or it is not relieved by a tube with a small lumen, I have good results by inserting a tube made of thinner material and of a larger calibre, leaving it *in situ* for six hours or more.

The differentiation between the tube being in the larynx or œsophagus.—After the tube has been introduced, remove the gag at once and wait a few seconds; now, if your tube has been passed into the larynx, you will immediately observe the difference in the breathing; the cyanosis disappears; a characteristic hollow-sounding cough, which, if once recognized or heard, you will be able to distinguish from all other coughs; this is then followed by a second sudden spasmodic cough, with a large amount of expectoration of muco-pus and membranes; if water is now given to drink, it will still increase this spasmodic cough, followed by still more mucous discharge through the tube.

The signs which present themselves if the tube has been passed into the œsophagus are different. Cyanosis increases, breathing is not relieved, the stenosis increases, the characteristic cough is absent, and the thread of eighteen inches long which is attached to the tube begins to disappear by the gravitating of the tube towards the stomach. Cough may also be present, due to irritation at an attempt of introduction, but without that specially-described cough.

If there is any doubt in your mind about the presenting signs, then, before the removal of the thread from its attachment to the tube, the gag had better be replaced, pass your finger down upon the head of the tube, and feel for the surrounding anatomical parts.

One should make himself thoroughly familiar with the anatomy of the larynx and all surrounding parts before he attempts to practise intubation.

The tube once in place and the thread removed brings us to this vital portion of the treatment, the irrigation of the affected parts.

Irrigation.—This is an admirable method of washing away the products of the local lesion. I use a No. 8 soft-rubber catheter, which is attached to a fountain-bag syringe; the catheter is passed into the nostrils, first the right and then the left. The solution which is used is made by taking peroxide of hydrogen (Charles Marchand's), fifteen-volume solution, chemically pure, six ounces to twelve ounces of water. With this solution irrigate each nostril thoroughly. After this has been done, the next move is to wash out the mouth, pharynx, and larynx. If the child can be managed without forcing the mouth open, there is no need of the insertion of a gag; but if not, use it. The patient is to be held well forward over a basin for the reception of the returning fluid. Make a second mixture of the peroxide of hydrogen of the strength of one ounce to eight ounces of water. Then pass the catheter well down into the larynx, and thoroughly irrigate it and the surrounding parts. The fluids are very seldom swallowed, and if this fluid mixture should be swallowed there is no danger of poisoning, as it is a perfectly harmless antiseptic. The fluid is generally immediately expelled by coughing. The mouth is to be kept wide open and the head well forward. By this mode of treatment, patches of membrane, inspissated muco-pus, etc., can be washed away without difficulty and without pain. My experience with peroxide of hydrogen for the last four years has made me familiar with its varied use in the treatment of the diseases of the nose and throat. From a consideration of the action of peroxide of hydrogen upon the deposit of diphtheritic membranes, and the rapid reproduction of bacteria, it will at once be evident that the earlier the application of the remedy is adopted the better. While the membrane is thin and friable, the action of this agent is thorough, quick, and effective; the deposit melts down before the contact of it like sugar in water, to be reproduced in a short time and again removed until the diseased tissue beneath can be plainly seen free from this characteristic covering. In this way also the spread of the mem-

brane is checked and its limits often sharply circumscribed, until, after some days, which it seems to me is within a week, the germinating power of the membrane is conquered and the poison ceases to produce its kind, no more deposit takes place, and the diseased tissues heal. In view of the rapid reproduction of bacteria already mentioned, it is evident that the applications should be no longer apart than two hours, or even less, according to the rapid reproduction of the membranes. Gargling may be practised by those who are able, but irrigation is preferred, as a more thorough application is thereby made. Irrigation is easily learned by the nurse, and there is absolutely no danger connected with its use.

The peroxide of hydrogen should be kept at a temperature below 65° F., as it begins to decompose slowly at the above-mentioned temperature.

No metallic substance must come in contact with peroxide of hydrogen on account of its oxidizing power.

Minor points in connection with intubation.—Ulceration from pressure of the tube is apt to occur. I have found it in almost one per cent. of my cases.

Speech is changed in character. It ranges from partial to complete aphonia after the final removal of the tube. This may last from two days to several weeks, but is always amenable to treatment. I never had a case that did not get well.

Another and very seriously annoying result of a distended stomach is the frequent expulsion of the tube resulting from the nausea which, as I have indicated before, with proper care is easily avoided.

All that still remains is the record of my cases, which I shall now read.

Table showing the Results of Five Hundred and Twelve Cases of Intubation of the Larynx.

TOTAL NUMBER OF CASES OPERATED ON, FIVE HUNDRED AND TWELVE.

Male.....	294
Female.....	228
Recoveries.....	(37 per cent.) 189
Deaths.....	322

In the cases of recovery, the tube was removed on the first day in 5 cases; second day in 29 cases; third day in 37 cases; third and one-half day in 14 cases; fourth day in 43 cases; fifth day in 22 cases; sixth day in 10 cases; seventh day in 13 cases; ninth day in 6 cases; tenth day in 4 cases; eleventh day in 3 cases; fifteenth day in 2 cases; twentieth day in 2 cases.

UNDER THREE YEARS OF AGE.

Age.	Number.	Deaths.	Recoveries.
6 months.....	4	4	...
9 "	7	4	3
10 "	3	2	1
1 year.....	14	14	...
1½ years.....	14	12	2
1½ "	15	11	4
1¾ "	25	21	16
2 "	41	28	17
2¼ "	46	41	5
2½ "	48	48	...
2½ "	12	...	12
2¾ "	22	12	13
Total.....	251	197	73

OVER THREE YEARS OF AGE.

Age.	Number.	Deaths.	Recoveries.
3 years.....	17	17	...
3¼ "	16	2	14
3½ "	46	34	12
3¾ "	9	9	...
4 "	40	16	20
4½ "	27	10	17
5 "	33	14	15
6 "	21	10	11
7 "	21	7	12
8 "	6	2	4
9 "	2	2	...
11 "	5	1	4
16 "	3	...	3
18 "	2	...	2
21 "	2	1	1
Total.....	260	125	115

Out of 251 cases of children under three years of age, there were 73 recoveries, and in 260 cases three years of age and over, there were 115 recoveries; total, 189 cases out of 512 operated on.

CAUSES OF DEATH IN THREE HUNDRED AND TWENTY-TWO CASES.

Sepsis.....	39
Broncho-pneumonia.....	40
Heart-failure.....	21
Pneumonia	41
Extension of membranes to bronchi, or diphtheritic bronchitis.....	67
Bronchitis.....	45
Double pneumonia.....	16
Asphyxia, not being notified, and tube lost in the bed- mattress	1
Mechanical obstruction of heart's action by distention of stomach from fluids due to over-drinking.....	5
Exhaustion.....	20
Scarlatina.....	7
Nephritis.....	5
Membranous croup.....	12
Hemorrhage of the nose.....	1
Asphyxia due to closure of the tube by membrane.....	2
Total.....	322

In conclusion, permit me to say a word regarding the value of intubation as an adjunct to other operations about the throat. In operating for post-pharyngeal abscess, laryngeal ulcers and cysts, syphilitic adhesions of the larynx by a web, and in all operations about the mouth where large hemorrhage is to be feared; in cleft palate; in all œdemæ about the larynx; in post-nasal tumors or growths; in removal of vegetations about the vault of the pharynx; in cases where a hurried tracheotomy is necessary, which I have termed the combined method of tracheotomy and intubation; in carcinoma and non-malignant tumors; in pharyngeal and laryngeal phthisis, where there is dyspnœa from infiltration of tissue of gelatinous matter, etc., I have, before operating, intubated by introducing, as was indicated, rubber-tubing catheters and intubation tubes, thus avoiding the more bloody and difficult operation of tracheotomy. For additional information, I refer to a paper entitled "The Value of Intubation of the Larynx in Connection with other Operations," read by me before the American Medical Association at their annual meeting at Newport in 1889, republished in the Journal of the American Association.

CHILDREN INOCULATED WITH KOCH'S LYMPH.

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THE cases reported in the following pages were inmates of either the Foundling or the German Hospitals. The former were in the services of Drs. Reid and O'Dwyer, the latter in my own and those of some colleagues connected (like myself) with that institution. A few cases of the Mount Sinai Hospital remained, after I had made my first injections, in the hands of Dr. I. N. Heinemann, who will report in due time.

The action of the lymph is claimed to be as follows: Its effect, when introduced into the subcutaneous tissue, is a specific one, and perceptible in tubercular tissue of every kind by certain local and general reactions (redness, swelling, fever) in bones, joints, glands, integuments, and lungs. In the lungs the effect cannot be observed; it must be inferred from the changed physical symptoms (cough, rhonchi, dulness, and expectoration). Incipient tuberculosis can be cured by it. Protracted tuberculosis is at least influenced. The diagnosis of tuberculosis, though ever so concealed, can be made with accuracy and certainty by the means of inoculations.

The following cases are reported as a contribution to the subject which has attracted the attention of the whole world. The number of children on whom inoculations have been made is not yet large, and the results obtained are not uniform.

CASE I.—Female, aged nineteen and a half months; tubercular meningitis; advanced stage. At time of inoculation semi-comatose; respiration irregular and sighing; pulse very irregular and rapid; frequent convulsive movements of arms. Temperature varying from 100° to 102.2° F.; pulse varying from 130 to 180; respiration 16.

December 12, 3.30 P.M., patient was inoculated beneath the skin of abdomen with half a milligramme of Koch's lymph. The temperature, taken every hour, dropped slowly from 101.2° F., at 4 P.M., to 99.5° F. at 9 P.M. The pulse continued irregular, varying from 154 to 176. The respirations

increased in number, and at 9 P.M. had become markedly more regular. After 9 P.M. there was a slight increase in temperature to about 100° F., at which it remained until 3 or 4 A.M., December 13, when it rose one degree, and fell again to 100° F. an hour later. At 10 P.M. the temperature rose again, reaching 102° F. at 4 P.M. The pulse increased in frequency during this time, reaching 190 in the early morning, but decreasing to about 160 in the afternoon. The respirations remained at about 28. The coma was, perhaps, slightly less marked and the convulsive movements of the arms unchanged. There was no local reaction save a papule at site of inoculation about one line in diameter.

December 13, 4 P.M.—Inoculated under skin of abdomen with one milligramme of Koch's lymph. Temperature remained slightly above 102° until 2 A.M., December 14, when it fell half a degree. The pulse and respiration remained the same. At 9 P.M., December 13, the convulsive movements had become much more marked, the arms being raised to the sides of the head and above it. There was an occasional short cough. The child moaned frequently and was restless. During the morning of December 14 the convulsions became almost continuous; the arms being now held at or near the sides; forearms strongly supinated; hands flexed on wrists; fingers and thumbs flexed on palms; abdomen somewhat distended; external strabismus marked, pupils contracted; moaning louder and more frequent. 11 to 11.30, changed suddenly. Temperature, which at 10 A.M. had been 102.8° F., had now risen to 105° F. The pulse was 190 to 200, and the respirations 95 to 100. The convulsive movements stopped entirely.

The child sank slowly and died at 1 P.M.

The autopsy revealed only the usual symptoms of acute miliary tuberculosis of the meninges, with intense hyperæmia, also, of peritoneum, liver, spleen, and lungs. There were no reasons to believe that the inoculations had any result either beneficial or injurious. Still, it appears that the immediate effect of the first inoculation was a lowering of the temperature; and also that the temperature, which, as a rule, rises three or four days before the fatal termination of tubercular

meningitis, did not do so here. Still, the symptoms usually met with between the second and seventh years are not so liable to be found when the patient is quite young.

CASE II.—Wm. G., aged four years. Tuberculosis of right knee; tuberculous glands of neck; infiltration of right apex.

December 13, 4 P.M.—Inoculation of half a milligramme. Temperature 100.2°; 6 P.M., 100.2°; night good; 8 P.M., temperature 98°; remained at 99° or below until 10 A.M.

December 14.—Was between 100.5° and 101.8° at 2 P.M. and 4 P.M., and below 100° until 6 A.M. on the 16th; rose to 100.5° at 8 A.M. There was some induration and pink blush at site of inoculation twenty-four hours after inoculation, when the temperature was highest. The lowest pulse during this time was 120, the highest 144; lowest respiration during this time was 24, the highest 36. Neither the highest rate of pulse nor of respiration corresponded always with the highest temperature. In the early morning hours of the 16th there was a fine pale papular rash over most of body, thickest on abdomen, thighs, and about neck.

Second inoculation, of one milligramme, at 4 P.M. on the 16th. At 8 A.M. on the 17th, temperature 100.5°; at 10 A.M., 100°. No rise of pulse, respiration, or temperature.

Third inoculation, 4 P.M., the 17th, again of .001. Highest temperature (of 100°) at 8 A.M. and 12 M.

Fourth inoculation, 4 P.M., the 18th, of one and two-thirds milligramme. No rise of temperature above 99.5°; respiration, 28 to 36; pulse, 130 to 134.

Fifth inoculation, of .002, 4 P.M., the 19th; no rise. On the 20th the size of the right thigh suggested the diagnosis of abscess; a puncture was made and bacilli tuberculosis were found in the pus; at that time temperature was 100°. No temperature as high as 100° until 2 P.M. on the 23d, when it reached 100.5°; at that time the abscess was freely opened and drained.

Sixth inoculation was made at 4 P.M., the 23d, of one-half milligramme. At midnight the temperature rose to 100.2° to 102.4° at 2 A.M. On the 24th it remained between 101.8° and 103.5°, until 6 A.M. on the 25th, while the pulse oscillated between 144 and 158, and respiration between 38 and 48.

Seventh inoculation, of two and a half milligrammes, at 2 P.M. on the 25th. Temperature nearly normal until midnight, when it rose to 101.5° . It was 102° two hours later, on the 26th, then sank, and rose again at 4 P.M. to 101.2° , and at 6 P.M. to 101.5° .

Eighth inoculation, of three milligrammes, was made at 3 P.M. on the 27th. No temperature above 99.5° ; respiration as low as 24; pulse as low as 128.

Ninth inoculation, of five milligrammes, at 4 P.M. on the 29th. Temperature always below 100° ; pulse averaging 134; respiration as low as 30. Only once the temperature rose to 100.2° ,—at 5 P.M.

Tenth inoculation, of six milligrammes, was made on the 31st, at 4 P.M. At 10 P.M. the temperature had come down to 100° . January 1, 4 A.M., temperature 100.5° , respiration 136, pulse 38; at 1 P.M., temperature 103.2° , pulse 156, respiration 52; at 5 P.M., temperature 104.2° , pulse 156, respiration 52; at 9 P.M., temperature 102° , pulse 144, respiration 42. At 1 A.M. on the 2d of January, temperature 100° , pulse 136, respiration 38. It rose again towards the afternoon, with temperature 101.5° , pulse 144, respiration 48.

Eleventh inoculation, of seven and a half milligrammes, at 4 P.M. on the 2d; at 9 A.M., next day, temperature 101° , pulse 144, respiration 42; at 1 P.M., temperature 102.2° , pulse 152, respiration 48.

Twelfth inoculation, of ten milligrammes, at 4 P.M. on the 3d. Temperature at 5 P.M., 102.5° , pulse 156, respiration 44; after that the temperature sank to 99.5° at 4 A.M. on the 4th; rose to 102° at 5 P.M., with pulse 152 and respiration 44; sank, in the morning hours of the 5th, to 100° ; rose to 102° in the early afternoon, with pulse 148 and respiration 42; sank; rose again to 102° at 1 A.M. on the 6th (pulse 148, respiration 42); sank to 99.5° (pulse 138, respiration 36) at 9 A.M.; and rose at 1 P.M. to 102° (pulse 138, respiration 34), and at 9 P.M. to 103.4° (pulse 180, respiration 48). At that time Dr. O'Dwyer examined the lungs of the child and found consolidation at right apex, both anteriorly and posteriorly, exactly as it had been on the 13th of December.

This case shows bacilli in the pus of the right thigh; in-

filtration of the right apex. Very trifling response to the injections of from one-half to ten milligrammes. No correspondence between such response as was elicited by the lymph in the beginning and the pulse and respiration. This correspondence was more distinct on the last two days of this history, when no inoculations were made; but then the fever was considered the result rather of the thigh than of the lymph. The final dose of ten milligrammes is a rather large one, but no reaction distinctly attributable to it made its appearance.

CASE III.—Harry C., aged five years and eight months. Tubercular abscess (bacilli found) in right inguinal region, presumably from lesion of lumbar vertebræ. Examination of internal organs negative.

December 13, 4 P.M.—Inoculation of one-half milligramme. Temperature 99.5° , pulse 120, respiration 24. Pain was complained of at site of injection. Temperature rose.

December 14.—Temperature rose at 4 P.M. to 101° , pulse 146, respiration 35; at 8 A.M., temperature 102.2° , pulse 132, respiration 36; at 12 M., temperature 103° , pulse 156, respiration 36; began to sink after 4 P.M. until it was 98.5° at 6 A.M. on the 15th.

December 15.—Some induration and a pink blush at site of inoculation. Second inoculation at 4 P.M. (half a milligramme). At midnight, temperature 100° .

December 16.—Temperature rose at 4 A.M. to 100.8° ; lower afterwards. Third inoculation (one milligramme) at 4 P.M.

December 17.—Temperature at 2 A.M., 100.2° , pulse 138, respiration 36; at 4 A.M., temperature 101° , pulse 144, respiration 36. Fourth inoculation (one milligramme) at 4 P.M.; temperature 100° , pulse 138, respiration 42.

December 18.—Temperature below 100° . Fifth inoculation (one and two-thirds milligrammes) at 4.30 P.M. No rise; highest temperature attained, 99.5° at 6 A.M. on the 19th.

December 19.—Sixth inoculation (two milligrammes) at 4 P.M. No rise of temperature except 100.2° (pulse 153, respiration 42) at 8 P.M.; urine of high color, without albuminuria.

December 20.—Normal temperature (98.5° to 99.5°), with pulse 130 to 142, and respiration 30 to 38.

December 22.—Seventh inoculation, at 4 P.M., of two and a half milligrammes.

December 23.—Temperature at 10 A.M. 100.2° , pulse 138, respiration 34; afterwards normal. Eighth inoculation, at 4 P.M., of two and a half milligrammes. No rise.

December 25.—Ninth inoculation, of two and a half milligrammes.

December 27.—Tenth inoculation, of four and a half milligrammes, at 4 P.M., when for the first time again temperature 100° (pulse 134, respiration 32). Everything normal until December 29 at 4 P.M., when temperature rose to 100.5° , pulse 136, respiration 34. Eleventh inoculation, of five milligrammes.

December 30.—Temperature at 2 A.M., 100.2° , pulse 134, respiration 32; 4 P.M., temperature 100.5° , pulse 134, respiration 32; 8 P.M., temperature 100.2° , pulse 134, respiration 32; at all other times, the temperatures being taken every two hours, everything normal.

December 31.—Temperature at 5 P.M., 101° , pulse 138, respiration 36. Twelfth inoculation (six milligrammes) at 10 P.M.; temperature 100.5° , pulse 136, respiration 38; at 5 P.M., January 1, temperature 100.5° , pulse 142, respiration 38; at 9 P.M., temperature 101° , pulse 140, respiration 38.

January 2.—Thirteenth inoculation (seven and a half milligrammes) at 4 P.M. At 5 P.M., temperature 101° , pulse 144, respiration 40; at 9 P.M., temperature 100.2° , pulse 136, respiration 38. All temperatures normal until 1 P.M. on the 6th, when the observations had to be stopped. Meanwhile, on January 3, the fourteenth inoculation (ten milligrammes) was made at 4 P.M., and no response. Examinations of internal organs negative.

In this case the first inoculation, of half a milligramme, resulted in a distinct reaction, which showed itself in a rise of temperature and of respiration, not of the pulse. Afterwards the responses were but trifling or negative, even with a dose of ten milligrammes. No improvement.

CASE IV.—Female, aged four years and eleven months. Tubercular disease of left hip; discharging sinus. Examination of lungs and other organs negative.

December 13, 4 P.M.—Temperature 101.5° , pulse 132,

respiration 32. Inoculation of half a milligramme. 8 P.M., temperature 99.5° , pulse 120, respiration 30. Night as usual, and everything normal.

December 14.—From 8 A.M. to 10 P.M., temperature between 100.2° to 101.2° to 100° , and considerable increase of discharge from sinus.

December 15.—Some induration at site of inoculation and pink blush area on skin about one and a half inches in diameter. 8 A.M., temperature 100.5° , pulse 144, respiration 36; 10 A.M., temperature 101.8° , pulse 156, respiration 36; 12 M., temperature 103° , pulse 156, respiration 42; 2 P.M., temperature 102.8° , pulse 156, respiration 36; 4 P.M., temperature 101.8° , pulse 156, respiration 30. Second inoculation, of half a milligramme. Everything normal until the 16th.

December 16.—2 A.M., temperature 100° , pulse 159, respiration 30; 4 A.M., temperature 100.5° , pulse 156, respiration 36; 6 A.M., temperature 100° , pulse 144, respiration 30; 8 A.M., temperature 100.8° , pulse 144, respiration 30; 10 A.M., temperature 101.5° , pulse 138, respiration 36; 12 M., temperature 103° , pulse 144, respiration 42; 2 P.M., temperature 103.2° , pulse 158, respiration 42; 4 P.M., temperature 103° , pulse 144, respiration 38; 6 P.M., temperature 101° , pulse 138, respiration 36. Third inoculation, of one milligramme. Afterwards everything normal until high temperature on the 17th.

December 17.—12 M., temperature 101° ; 2 P.M., 101° ; 4 P.M., 102° ; 6 P.M., 101° ; 8 P.M., 101.2° ; 10 P.M., 100° ; with no apparent effect on pulse and respiration. One milligramme was injected at 4 P.M. (fourth inoculation).

December 18.—Temperature from 10 A.M. to 4 P.M., between 100° and 102° . Fifth inoculation, of one and two-thirds milligrammes, at 4.30 P.M.

December 19.—Urine of high color, no albumin; temperature at 6 A.M., 100.8° , pulse 132, respiration 33; rose to 102° at 2 P.M. (pulse 138, respiration 36), and sank to 100.5° at 4 P.M. The sixth inoculation, of two milligrammes, was then made. Temperature at 8 P.M., 101.2° , pulse 144, respiration 42; then came down to 100° .

December 20.—10 A.M., temperature 100.6° , pulse 136, res-

piration 36; 12 M., temperature 101.8° , pulse 138, respiration 36; 2 P.M., temperature 102° , pulse 138, respiration 36; 8 P.M., temperature 102.5° , pulse 145, respiration 38.

December 21.—Temperature rose several times to 99.5° ; in the afternoon to 102° (pulse 144, respiration 45), and did not become normal until the evening of December 23.

December 22.—The seventh inoculation, of two and a half milligrammes, was made at 4 P.M. There was a slight rise of temperature to 101.5° at 4 A.M., and at 2 P.M., on the 23d, the temperature being normal at no time.

December 23.—At 4 P.M. the eighth inoculation, of two and a half milligrammes, was made, when the temperature was 101.5° . It came down immediately after, and remained between 99.5° and 100.2° until December 27.

December 25, 12 M.—Ninth inoculation of two and a half milligrammes, with no visible reaction.

December 27, 2 P.M.—Temperature 101° , pulse 136, respiration 34. Tenth inoculation, of three milligrammes. Temperature gradually lower until it rose to 101.5° again, in the afternoon of December 28; respiration all the time 32 to 40; pulse 134 to 138.

December 29.—Rise of temperature at 4 P.M., 101.2° . Eleventh inoculation, of five milligrammes, with no visible result. Temperature remaining between 101.8° and 100° until 5 A.M., January 2.

December 31, 5 P.M.—Twelfth inoculation, of six milligrammes.

January 2.—1 P.M., temperature 101° , pulse 142, respiration 40; 5 P.M., temperature 103.8° , pulse 156, respiration 44; then the thirteenth inoculation, of seven and a half milligrammes. Temperature gradually lower until the 3d.

January 3.—9 A.M., temperature 100.5° , pulse 148, respiration 42; higher at 1 P.M., temperature 102.8° , pulse 156, respiration 40. Fourteenth inoculation, of ten milligrammes, at 4 P.M. 5 P.M., temperature 102° , pulse 148, respiration 42; 9 P.M., temperature 101.2° , pulse 144, respiration 38.

January 4.—1 A.M., temperature 101° , pulse 142, respiration 38; 5 A.M., temperature 100° , pulse 144, respiration 42; 9 A.M., temperature 101.5° , pulse 148, respiration 44;

1 P.M., temperature 100.5° , pulse 146, respiration 48; 5 P.M., temperature 102° , pulse 156, respiration 48; 9 P.M., temperature 101.5° , pulse 142, respiration 40.

January 5.—1 A.M., temperature 102° , pulse 142, respiration 42; 5 A.M., temperature 101.2° , pulse 146, respiration 40; 9 A.M., temperature 100° , pulse 142, respiration 40; and changing temperatures between 101° and 100° until 6 P.M., on January 6, when the observations were stopped. Unless the temperature at 5 P.M., on January 4, can be taken as the result of the inoculation made at 4 P.M. on the 3d, the ten milligrammes have displayed as little effect in this case as in the others. There is a certain relation between temperature, pulse, and respiration, which may be accounted for by the fact that the sinus discharged all the time, without any changes attributable to the influence of the lymph.

CASE V.—Willie C., aged four years and nine months. Pott's disease; dorsal kyphosis; lungs negative. Temperature at 4 P.M., December 13, 99.2° . Inoculation of half a milligramme. Everything remained normal until 2 A.M. of December 14, when temperature was 100° , pulse 145, respiration 36; 4 A.M., temperature 102.5° , pulse 158, respiration 34; 8 A.M., temperature 102.5° , pulse 156, respiration 36. At 10 P.M., the reaction had entirely passed off, but the pulse was still 156, with respiration 30.

December 15.—Some induration and slight blush near injection. Temperature normal.

December 16, 1 P.M.—Temperature 100.8° . Second inoculation, of one milligramme, at 4 P.M.

December 17.—2 A.M., temperature 100° , pulse 144, respiration 38; 4 A.M., temperature 100.5° , pulse 144, respiration 36; 6 A.M., temperature 99.6° , pulse 138, respiration 33; and again at 12 M., temperature 100.5° ; and again at 4 P.M., temperature 100° . At that time the third inoculation, of one milligramme, was made, followed, December 18, at 8 and 10 A.M., by slight rise to 100° . Some cervical glands were found enlarged; the urine of high color; no albumin.

December 19, 4 P.M.—Inoculation of two milligrammes. No rise of temperature, pulse, or respiration.

December 20.—The fourth inoculation, of two and a half

milligrammes, was followed, December 21, 2 P.M. and 4 P.M., by a rise in temperature to 100.5° , and a slight increase of pulse and respiration.

December 22.—Fifth inoculation, of two and a half milligrammes, at 4 P.M.; a slight rise of temperature began at 8 A.M. on the 23d, and lasted to 6 P.M. (temperature 100° to 101.5°); also a slight rise in pulse and respiration. There was again a rise on December 24, lasting from 2 A.M. to 6 P.M. (temperature 100° to 101°); also on December 25, at 8 and 10 A.M. (temperature 100.5° to 101°), and in the afternoon and night, the latter possibly due to the sixth inoculation, of two and a half milligrammes, at 1 P.M.

December 26, 27.—Normal. Seventh inoculation, of three milligrammes, at 4 P.M.

December 28.—Temperature rises to 100.5° at 6 A.M.; 100° at 8 A.M.; 99.5° at 10 A.M.; and at 12 M. again 100.8° .

December 29, 4 P.M.—Eighth inoculation, of five milligrammes. No reaction.

December 31, 4 P.M.—Ninth inoculation, of six milligrammes.

January 1, 1 P.M. and 5 P.M.—Temperature 100° ; everything else normal.

January 2, 4 P.M.—Tenth inoculation, of seven and a half milligrammes. Temperature at 9 P.M., 100° ; 9 A.M., on January 3, 101° , with corresponding increase of pulse and respiration. Eleventh inoculation at 4 P.M., of ten milligrammes, without any visible effect until 1 P.M. on the 6th, when the observations had to be stopped.

Of the preceding four cases this is the only one in which no bacilli were found, and tuberculosis could not be proven. There was, however, a pretty smart double reaction after the first injection of half a milligramme. If the axiom that this reaction proves tuberculosis were proven, the boy would be tuberculous; but in no organ was a tuberculous lesion discovered. Still, it is possible that the bone-disease he is affected with is tuberculous. Time may tell. After the same dose, and doses up to ten milligrammes, there was very little or no reaction. The time in which reaction, such as it was, would become visible changed from about four to fourteen hours in

these cases. The pulse was more influenced than respiration. Cervical glands swollen in the last case. Induration and moderate redness of the injection-site in all four a day after inoculation.

CASE VI.—Irene, aged five years. Slight dulness over left lung, anterior and posterior. In right axilla resonance much higher pitch than in left. No râles.

January 6.—Inoculation of one milligramme at 3 P.M. Temperature rose, on January 7, to 100.5° , reached 101° twice, and was normal again.

January 8, 3 A.M.—At no time was there an affection of pulse or respiration. From 9 A.M. to 3 P.M., the temperature again rose to 100.5° . It was normal on January 9; when, at 9 A.M., the second inoculation was made of two milligrammes. Temperature began to rise at 11 A.M. to 100° , reached 100.5° at 3 P.M. and 9 P.M., and again 100° at 7 A.M. on January 10. It remained at 100° until 1 P.M. At 7 P.M. the third inoculation was made of three milligrammes. Temperature rose after four hours, January 11, at 1 A.M., to 100.5° ; also pulse and respiration (pulse 104, respiration 28); 3 A.M., temperature 101.2° , pulse 114, respiration 30; 7 A.M., temperature 102.5° , pulse 124, respiration 34; 9 A.M., temperature 103° , pulse 152, respiration 36; 1 P.M., temperature 102.4° , pulse 148, respiration 34; 7 P.M., temperature 100.5° , pulse 134, respiration 28; 11 P.M., temperature 99° , pulse 124, respiration 28. The pulse never since reached its original number (90 to 98), while with rare exceptions, when the temperature was quite high, respiration remained fairly what it was in the beginning (22 to 28).

January 13, 9.30 P.M.—Fourth inoculation, of three milligrammes, with temperature 98.5° , pulse 120, respiration 22; 11 P.M., temperature 100.5° , pulse 130, respiration 24.

January 14.—1 A.M., temperature 102.2° , pulse 136, respiration 38; 7 A.M., temperature 104° , pulse 158, respiration 46; 9 A.M. to 3 P.M., temperature 104.5° , pulse 158, respiration 47 to 44. After that a general decline until January 15, 3 A.M., when the temperature was 99.5° , pulse 126, respiration 24.

January 16, 7 P.M.—Temperature 99° , pulse 120, respi-

ration 22. Fifth inoculation, of three milligrammes. 11 P.M., temperature 100° , pulse 128, respiration 38. Gradual rise until January 17, 5 A.M., temperature 104° , pulse 156, respiration 44. First decline at 9 A.M., temperature 103.5° , pulse 156, respiration 44; 7 P.M., temperature 99.5° , pulse 124, respiration 22. No inoculation was made for some days, with the result that on January 20 to 22 the temperature remained at 98.5° , and on the 21st the pulse returned for the first time to 98, and respiration to 20, the original figures. Weight of body on the 21st, forty-three and a half pounds.

January 22.—7 A.M., temperature 98.5° , pulse 90, respiration 20; 9 A.M., sixth inoculation, of three milligrammes; 11 A.M., temperature 99.5° , pulse 124, respiration 22. Gradual rise at 7 P.M., temperature 103.5° , pulse 156, respiration 44. Gradual decline.

January 23.—7 A.M., temperature 99.5° , pulse 124, respiration 22; 7 P.M., temperature 99° , pulse 90, respiration 20, where it remained undisturbed during the 24th, 25th, and 26th. Weight on this day, forty-five pounds. Vocal fremitus and resonance less than on previous examination at right apex.

This case exhibits characteristic reactions. Within four hours, once after two hours, the temperature rose without affecting either pulse or respiration. Only with the third inoculation and every subsequent one both pulse and respiration rose correspondingly. The reaction lasted about twenty-two hours, a little less than one-half of this time being spent on the rise. Respiration, with a single exception, returned more readily to the normal than the pulse, which remained accelerated for some time. Still, when a sufficient time was afforded, temperature, pulse, and respiration returned to the original condition on January 6.

CASE VII.—Jacob T., aged four and a half years. Cold abscess probably from right sacro-iliac synchondrosis along psoas muscle. Heart and lungs normal. Operations on September 26 and October 13. Condition after, very good. No temperatures. Wound almost healed on December 1, but condition rather stationary.

December 13.—Inoculation of one milligramme. Pain on

site of inoculation ; little sleep ; face pale ; pulse intermittent ; respiration stertorous ; sweat profuse ; thirst intense. Twelve hours after injection, temperature 102° , pulse 144. No change in wound.

December 15.—Inoculation of one milligramme. Ten hours afterwards, temperature 100.4° . Sweat profuse.

December 17.—Inoculation of two milligrammes. No particular change.

December 19.—Inoculation of three milligrammes. Sleep good ; also appetite ; wound closing.

December 20.—Inoculation of three milligrammes. Temperature, 101.6° on the 21st.

December 22.—Inoculation of three milligrammes. In the night pale ; perspiring.

December 24.—Inoculation of four milligrammes. Temperature 100.4° , pulse 120.

December 26.—Inoculation of five milligrammes. Temperature 101.4° ; and 124° twenty-two hours after injection.

December 28.—Inoculation of five milligrammes. No reaction.

December 30.—Inoculation of five milligrammes. Temperature 100.4° . Fistula looks well ; no secretion. On January 1, the examination of the boy showed condition good, the wound but slightly improved. Reactions occurred in ten and twenty-two hours ; and grew less and less unless the doses were increased. The first injection, of one milligramme, showed the most marked results. If the existence of a reaction after small doses proves the existence of tuberculosis, the original source of the abscess was certainly tuberculous. This agrees with the diagnosis of the case made in September. Very slight improvement thus far.

CASE VIII.—Rosa J., aged thirteen years. Had undergone an operation for swollen cervical glands on the right side. Left in September apparently in good health. Admitted, December 31, because of general indisposition and fever. At the upper end of the cicatrix a glandular swelling. Over the right upper lobe diminished respiration behind, and some dulness both anteriorly and posteriorly. A few days in bed restored her temperature almost to the normal. After the

evening of January 4 the temperature never rose. For the sake of diagnosis lymph was injected, one milligramme in the morning of the 3d, two milligrammes in the evening of the 4th, five milligrammes in the evening of the 6th, ten milligrammes in the evening of the 7th, with not a trace of response. Inoculation was stopped. We also learned from Dr. Kammerer, who performed the operation in July, that the glands he removed were not considered tuberculous. This case would then be conclusive of the motto, "No tuberculosis, no reaction."

CASE IX.—Mamie C., aged five years and six months; admitted January 1. Tubercular peritonitis; ascites. Is reported to have been sick a week with fever, and tumid abdomen and loss of appetite. For the next few days the highest afternoon temperature was 100.5° ; morning temperature as low as 98.4° . First inoculation, of half a milligramme, at 8.45 P.M. on January 3. Within five hours, temperature 103.2° , pulse 149, respiration 30. Temperature rose to 104.5° , and the accompanying symptoms became so alarming that phenacetin and brandy were administered at different times. Moderate rises up to 102° still on the 5th. Not before the 6th was the temperature below 100° ; then, at 7.30 P.M., half a milligramme was injected. The highest temperature reached was 100.8° (after ten hours). On the 8th, 10th, 11th, 12th, and 13th, inoculations of one milligramme each. Highest temperature on the 9th, 101.4° ; on the 10th, 102.8° ; on the 11th, 101.2° ; on the 12th, 102° ; on the 13th, 101.4° . Respiration and pulse always in proportion.

Injections of two milligrammes each on the 14th, temperature 102.2° ; on the 16th, 101.4° ; on the 18th, 100.2° ; on the 21st, 104.6° , after nine hours; on the 23d, 100.7° ; on the 25th, 102° ; on the 27th, 102.3° ; on the 29th, 100.4° .

In that time the circumference of the abdomen had decreased from fifty-six to fifty-three inches.

This is a case in which the reactions behaved according to schedule. The fever temperatures rose mostly within from five to nine hours; the first dose of half a milligramme acted very vigorously; gradually the effect grew less, though the doses were increased from half a milligramme to two milli-

grammes. Very suddenly and unexpectedly, eighteen days after the treatment was begun, the temperature rose again to 104.6° with corresponding rise of both pulse and temperature.

The observations in a number of these cases were incomplete in that they were suddenly stopped on January 6, after having begun on December 13. Still they had lasted long enough to teach several lessons.

In some there was a reaction after the inoculation of a small dose; after a short time, though the dose was considerably increased, no reaction showed itself, though the cases were proven to be tuberculous. In one there was no reaction. In others the reactions were quite marked. Thus, the diagnostic importance of the lymph leaves much to be desired. This is the same experience I have made among adults, on whom many more observations could be made. At all events, when there is a certain percentage of cases which prove exceptions to the rules proposed by Robert Koch, much more experience will be required to determine whether there are circumstances amenable to either estimation or calculation which influence the availability of the lymph as a means of diagnosis. Epstein has (*Prager Med. Woch.*, No. 1, 1891) suggested that the lymph, by its alleged uniform action, could be utilized for the purpose of deciding the question of the hereditariness of tuberculosis. It appears, however, that this assumption is premature. Nor does it appear that the action of the lymph will decide in doubtful cases whether we have to deal with tuberculosis or retarded symptoms of syphilis. The doubt in this respect grows with the observations of the many cases in which no tuberculosis is present, but either a healthy condition, or a pseudoplasm, and where the inoculation of lymph results in a decided elevation of temperature and the appearance of other constitutional symptoms.

The doses required and tolerated by my children were very large compared with those of adults. As Epstein remarks on the same fact observed by him in nurslings of from five to eight weeks, I should suggest some pathological and therapeutical facts which I think bear further study. The ptomaine of the lymph not influencing the young as it does the old, reminds us of the scarcity of bad cases of typhoid fever in infancy and

childhood, though its frequency cannot be denied. It appears that the young system offers either a greater resistance to the effect of the typhoid ptomaine, or perhaps yields a less genial resting and feeding-place for the bacillus. Perhaps, also, the fact that the young require comparatively larger doses of cardiac stimulants than the adult is a parallel to the experience detailed above.

The therapeutical results of the lymph in the cases reported thus far are not at all striking. It is true, most of them were very unfavorable cases, and that has to be taken into account. If they were not more favorable they had to be reported exactly as they presented themselves. The greater the variety of observations and observed results, either favorable or unfavorable, the more shall we learn, by comparison, of the practical effects of a preparation which, if it fulfils, as it certainly does, only a part of the expectations roused in its favor, will still prove one of the most powerful, rational, and methodical therapeutical forces at our disposal.

MILK secreted in insufficient mammæ, by a woman not in full health, or by a very old woman, or by a very young woman, or by a woman very anæmic from prolonged convalescence, is incapable of properly nourishing a healthy child.—HATFIELD.

Nature has provided a plenary abundance of food for the infant until the third day, and it is directly flying into the face of Providence to fill the new-born child's stomach with saccharine mixtures, gruel, or the milk of quadrupeds.—HATFIELD.

Syphilis appearing after the first few months of life is generally acquired.—HATFIELD.

Hereditary syphilis in a mother is more frequently due to the syphilis of the father.—HATFIELD.

Congenital syphilis is caused as a rule by the mother.—HATFIELD.

Syphilitic fathers do not invariably beget syphilitic children.—HATFIELD.

The child of a woman becoming syphilitic towards the end of pregnancy may be born healthy and enjoy immunity from the syphilis of its mother.—HATFIELD.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Escherich: The Pathogenesis of Digestive Disorders, during the Nursing Period, of Bacterial Origin. (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

The digestive disorders of infants, which originate from abnormal processes of fermentation in the milk, or in the collective contents of the intestine, must be sharply distinguished from true infectious diseases of the intestine which are due to the invasion of pathogenic micro-organisms, independently of the form of nutrition. The occurrence of the latter is associated with the fermentative activity of certain very common germs in an appropriate medium, and under definite external relations. Different organic acids irritating to the intestinal tract are formed, and also ptomaines, the effect of which upon the sensitive central nervous system of infants is seen in the severe nervous symptoms which accompany summer diarrhœa. Processes of fermentation may be distinguished as of ectogenous and endogenous origin. The former apply almost exclusively to cow's milk, and may be instituted within a few hours after the milk has been drawn. The decompositions, or lactic-acid fermentations, which result really mean only the breaking up of milk-sugar, and vary according to the temperature at which the milk is kept. Endogenous fermentation is often a direct continuation of the ectogenous, and may take place readily, since the stomach of the infant is not rich in hydrochloric acid, and hence cannot furnish this agent in abundance for the destruction of the germs introduced with the nutrition; hence it is comparatively helpless with such foes. The fermentation processes in connection with a milk diet in the stomach, as well as in the small intestine, lead to the development of abnormally acid conditions, like dyspepsia and acid diarrhœa, by the destruction of the milk-sugar. After the sugar has reached that portion of the intestine where it may be resorbed, the conditions are favorable for the decomposition of albumen. Clinically the use of milk which has undergone ectogenous fermentation causes acute intoxication, with violent local symptoms of irritation, and sometimes of collapse, cyanosis, and dyspnœa. Among the processes of endogenous fermentation

may be mentioned the isolated stomach-fermentation, with acid vomiting, atony, and ectasis of the organ, also the small-intestine fermentation, with its acid diarrhoea, and the large-intestine fermentation, with phenomena of mild colitis. The dyspepsia which is due to starchy fermentation shows marked differences from the sugar dyspepsias. In this form there occurs in the lower portion of the bowel, from undigested starch, an acid, feculent diarrhoea, which tends to develop into chronic intestinal catarrh. After a while there may be symptoms resembling cholera, or the upper portion of the intestine or the stomach may be implicated.

A. F. C.

Weiss: Subcutaneous Injections of Salt Solution in Acute Anæmia and Cholera Infantum. (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

A six-tenths-per-cent. solution of salt was first used in four cases of cholera infantum, two dying and two recovering. To the solution was added a little alcohol. The solution was sterilized, and kept at a temperature of 39° to 40° C. The apparatus used was a glass funnel with a rubber tube, one and a half metres long, to which a cock was attached, the end of which fitted into the canula connected with a small trocar. In place of the foregoing, one may use for children a small syringe, holding about twenty grammes, to which a long aspirating needle may be attached. The transfusion was made into the skin of the abdominal wall, and absorption was assisted by massage over the point of injection. For infants, thirty to fifty-five centimetres is a sufficient quantity for injection, and it could be repeated if collapse rendered it necessary. No unpleasant phenomena are likely to accompany the injections. After the operation the head should be lowered, the feet raised, elastic bandages should be wrapped around the child, and other excitants should be used as occasion calls for them. The same treatment may be used in collapse following extensive hemorrhage, either in children or adults.

A. F. C.

Leo: The Functions of the Normal and the Diseased Stomach, and the Therapeutic Results of Irrigation of the Stomach during Infancy. (*Jahrb. f. Kinderh.*, xxxi. 1, 2.)

The studies of the author concerning normal digestion of milk, upon the persons of thirty infants, from two hours to twelve months old, although they offer no different methods from those which have long been in use among adults, yet fill a long and painfully-felt gap in our physiological knowledge. The time which elapsed before the removal of the milk from

the stomach was an hour to an hour and a half, with breast-fed children in the first few months of life; with older children, and nourishment with cow's milk, it was two hours. After the evacuation of the stomach a small quantity of yellowish fluid remained, which showed all the characteristic conditions of the secretion of the stomach, and is to be considered the residuum of the digestive process which has taken place. Within fifteen minutes after food has been taken, there is always in the coagulated milk a perceptible but weakly acid reaction, which, however, gradually becomes more intense. Free acid can be obtained with testing-paper within an hour, both hydrochloric and lactic. It does not follow, because, during the greatest portion of the period of digestion, free hydrochloric acid is wanting, that none is secreted during that time. As soon as secreted it is taken up by the milk and in part neutralized, in part used for the formation of acid combinations.

Albumen-digesting ferment and lab-ferment can always be demonstrated in the full or the fasting stomach, even in the newly-born. By removal of the contents of the stomach at varying periods after eating, the author demonstrated that actual peptonization of the albumen took place. Although this is only to an insignificant degree, yet it is of great importance. In spite of the want of free acid a considerable portion of the germs introduced with the food is destroyed in the process of digestion. The number of germs found in the contents of the stomach one hour after taking food was always less than immediately after the meal. For the study of the pathological side of the question one hundred and four infants were examined who suffered from acute dyspepsia, cholera infantum, or chronic gastro-enteric diseases. In all the cases the milk remained an abnormally long time in the stomach, as the result of deficient motor function in the muscular structure of the stomach. In many cases there was marked acidity, due to abnormal organic acids, or to hydrochloric acid secreted in excess as the result of the irritation of the contents of the stomach. Pepsin and lab-ferment were always present. These investigations led to the conclusion that the removal of the decomposed contents of the stomach, preferably by irrigation, will produce a cure in many cases of acute and chronic disease of the stomach. In the author's one hundred cases very good results were obtained, especially in acute dyspepsia and constant vomiting. In simple or severe diarrhoea, without disturbance of the appetite, good results were obtained by irrigation, with or without the addition of thymol to the irrigating fluid. The results were much less favorable in cholera infantum.

A. F. C.

Dauchez: The Relative Immunity of Childhood from Epidemic Grippe, and its Benignity compared with its Course in Adults. (*Rev. Mens. des Mal. de l'Enf.*, July, 1890.)

The author bases his observations upon his experience with this disease in the epidemic of the winter of 1889. With adults and old people the disease was not infrequently fatal, with children scarcely ever. Of one hundred and thirty-six cases which were treated by him, thirty-two occurred in children with no deaths. He observed the following peculiarities:

1. Benign course; no mortality if the children were in good health when attacked; few complications.
2. Sudden attack at night, without prodromata.
3. Predominance of general symptoms; no appreciable visceral localization, or else one which was quite disproportionate with the gravity of the general symptoms.
4. Constipation; torpor of the intestines; rarely diarrhœa following the retention of fæcal matter.
5. Sudden, instantaneous, and spontaneous cessation of the disease independent of therapeutic intervention. Occasional mild recurrences after a considerable period.
6. Duration of the hyperpyretic form two or three days, of the subacute form four to six days.

A. F. C.

Rheiner: The Dietetic Treatment of Digestive Disturbances in Small Children. (*Rev. Mens. des Mal. de l'Enf.*, July, 1890.)

In all young children who suffer with digestive troubles the matter of the diet is of the utmost importance. The essential point in a case of acute dyspepsia consists in keeping the digestive organs, especially the stomach, free from contact with all irritating medicaments, and in providing such food as the digestive organs can dispose of. The etiology of such conditions should be more carefully studied than is the custom. In many cases of dyspepsia in children which have recently been weaned, it will suffice to put the child at the breast again for a time. In cases which are due to bad cow's milk, habitual overfeeding, or to the presence of pathogenic substances, the contents of the stomach must be removed as soon as possible and the mucous membrane fitted to perform its functions. Irrigation of the stomach will accomplish this end with satisfaction. After irrigation the stomach should be allowed to rest for one or two days, only water, or albumen water, or orange-juice, or tea being given. As feeding is resumed, all necessary precautions must be used to prevent a recurrence of the morbid condition.

A. F. C.

Variot: Lacteal Secretion in the New-Born. (*Gaz. Méd. de Paris*, October 4, 1890.)

Several cases have been observed by the author during the year, in which there was a remarkable superactivity in the mammary glands of new-born infants of both sexes. This usually was noticeable from the eighth to the fifteenth day. The glands were enlarged, the skin covering them being reddened, the tissue clammy to the touch, and pressure was painful. The way to treat this condition is by evacuation of the secretion, and it must be done with the utmost gentleness, for force would be likely to result in the formation of a mammary abscess. As much as two or three cubic centimetres of liquid may be removed from these distended glands, and analyses have shown that it contains the essential elements which are found in the milk of the adult female,—that is, it contains butter, caseine, and sugar of milk.

Sinéty, who has made an anatomical study of the condition, concludes that during the period of lactation or pseudo-lactation the mammary gland of the new-born infant contains culs-de-sac which are lined with secreting cells differing little from those which are found in the mammary gland of the woman. Thus anatomical and chemical investigations coincide in showing the identity of infantile and adult lacteal secretion. Before the eighth and just after the fifteenth day the secretion is transparent, waxy in appearance, and suggests colostrum. The functional activity of the glands gradually diminishes until the fourth or fifth month, when secretion ceases altogether. Bad condition of the general nutrition, even emaciation and cachexia, do not prevent this activity of the mammary glands. As to the immediate cause and significance of this singular phenomenon, nothing is known.

A. F. C.

Löffler: What Protection is offered against the Spread of Diphtheria? (*Med. Monatssch.*, October, 1890.)

Diphtheria is not limited, like cholera, to certain areas of territory, but occurs in the form of epidemics everywhere. It is difficult to fight with an enemy which one does not know about, and this has been the great difficulty in the treatment of diphtheria, a want of comprehension as to its nature. All investigators are now agreed that the cause of this disease resides in the bacillus which was discovered by Klebs in 1883. In the first place the patient must be isolated as thoroughly as possible, the sick-room must contain only the barest necessities, and such an end is more likely to be attained in a hospital than in a private house. All the furniture and belongings of the room with which the patient has been in contact must be

sterilized with steam. A child who has had diphtheria must be kept from school not less than four weeks, and he should be investigated bacteriologically before he returns to the school. Bacilli may be found in pieces of membrane for as long a period as fourteen or sixteen weeks, and their vitality is far greater in moist than in dry media.

The question is not yet decided whether diphtheria in different animals is transmissible to man. Löffler thinks, however, that the diphtheria of animals of all kinds has no relationship to human diphtheria, and hence that there is no danger of infection.

It is not necessary that the mucous membranes in which the bacillus of diphtheria establishes itself should be diseased to a greater or less extent, any more than it is that the stomach should be prepared for the residence of the cholera bacillus by some affection of its mucous membrane. It is very desirable during the time of diphtheria epidemics that children should wash out their mouths daily with mild antiseptic solutions,—for example, with a one to ten thousand solution of sublimate. The mortality statistics of Prussia have shown that in those regions where there is the lowest temperature the fatal cases of diphtheria are most numerous. This statement is objected to, however, on the ground that it is not based upon competent professional investigation. It is believed by the author, on the contrary, that the climate of a country has nothing to do with the danger which may arise from diphtheritic infection. A Norwegian investigator has found that the disease was very destructive among the fishing population resident along the coast; but this may be attributable rather to bad hygienic surroundings than to the climate. In conclusion, the following propositions are submitted:

1. The cause of diphtheria is the diphtheria bacillus which is to be found in the product of the diseased mucous membranes.

2. With this excretion of the mucous membrane the bacillus is cast forth from the individual. It may be deposited upon anything which happens to be in the neighborhood of the sick individual.

3. Diphtheria patients possess bacilli which are capable of producing infection as long as there is the slightest trace of a deposit upon their mucous membrane, and for some days after all deposits have disappeared.

4. Patients with diphtheria should be very carefully isolated as long as there are any bacilli in their secretions.

5. The bacilli of diphtheria will retain their vitality in portions of membrane for four or five months. Hence every-

thing which has been in contact with diphtheritic patients should be boiled, or disinfected with steam at 100° C. The sick-rooms should also be thoroughly disinfected. The floors should be scrubbed with sublimate solution (one to one thousand), and the walls of the room should be thoroughly rubbed with bread.

6. Investigations concerning the vitality of the bacilli of diphtheria in moist media have not yet been concluded. Their vitality is probably retained longer in a moist than in a dry medium. Damp and dark dwellings are especially favorable for the development of the diphtheritic virus. Such dwellings should therefore be made dry and thoroughly permeable to air and light. Especially when one is making a change of residence should the latter be disinfected, if there is any suspicion that it has been exposed to diphtheria.

7. The bacilli will thrive outside the body at a temperature of 20° C. They will develop readily in milk, hence one cannot be too careful in securing purity of this article of food. The sale of milk in buildings in which there have been cases of diphtheria should be prohibited.

8. Diseases which resemble diphtheria, and which occur in pigeons, dogs, and calves, are not caused by infection with the bacillus of human diphtheria. Therefore these diseases in animals need not be feared as a possible cause of the analogous disease in human beings.

9. The views of Klein in regard to the etiological identity of the disease which has been observed in cats with the diphtheria of human beings have not yet been substantiated.

10. Lesions of the mucous membranes of the *primæ viæ* favor the reception of the diphtheritic virus. Susceptible individuals may contract diphtheria without the existence of such lesions.

11. When diphtheria prevails, one cannot be too careful to keep the oral, nasal, and pharyngeal cavities of children thoroughly clean. As a means of prophylaxis, it is recommended that rinsings and garglings be practised with aromatic water, or a weak solution of sublimate (one to ten thousand).

12. The influence of certain meteorological factors in causing the spread of diphtheria has not been definitely proven.

A. F. C.

Saalfeld: *The Treatment of Eczema in Children.* (*Rev. Mens. des Mal. de l'Enf.*, August, 1890.)

Some interesting considerations are presented concerning the treatment of eczema, which differ essentially from those which are usually adopted in adults. Of all varieties of local eczemas

which are developed under the influence of external causes, the most important in children, in the author's opinion, is intertrigo. It is particularly common in fat children, and is frequently located near the margin of the anus, in the inguinal folds, in the folds of the neck, and in the vicinity of the chin. Intertrigo thus localized is readily cured by the use of bland and inert powders, but if the trouble includes large portions of the surface of the body, the local treatment should be supplemented by change in the diet, and if diarrhœa exists, it should be energetically treated as well. If the skin is the seat of an intense inflammation, cold compresses should be used for several days which have been moistened with a mixture composed of equal parts of a five-per-cent. solution of boric acid and the officinal solution of subacetate of lead, an ointment of boric acid being used after the former preparation has been discontinued. If the skin is very moist it should be dried with a suitable absorbent powder before using the ointment. In the treatment of eczema of the face and hairy scalp which is so common in fat children, it is well to diminish the quantity of nourishment, to eliminate fatty materials from the diet, and to combat habitual constipation with appropriate enemata. The crusts upon the head and face should first be softened with olive oil, and after they have been removed the surface should be anointed with the following ointment :

R Acidi borici, 1 5 grammes ;
 Zinci oxidi, 5 grammes ;
 Vaselini,
 Amyli pulv., aa, 30 grammes.

If there is generalized eczema of a scrofulous character, the organs of digestion must be carefully interrogated, and if the alimentation is insufficient, it must be supplemented with cod-liver oil combined with phosphorus or arsenic. The local treatment should be limited to the use of vaseline inunctions, followed by the use of bland powders upon the skin. Applications of tar preparations should be avoided, as they only irritate the skin. The following formula may be used with advantage :

R Hydrarg. albi pæcip., 1 gramme ;
 Balsami Peruv., 5 grammes ;
 Ung. Wilson, 30 grammes.

A. F. C.

Demme : Tympanites during Childhood, and its Etiology. (*Rev. Mens. des Mal. de l'Enf.*, August, 1890.)

Different forms of this condition are considered, and in particular that form which is denominated symptomatic tympanites,

which exists whenever the stomach, or a portion of the intestine, is distended for a period of time with a volume of gas. This form is common among rachitic children troubled with chronic dyspeptic disorders, and also occurs in the chronic catarrhs of the stomach and intestine to which children with tuberculosis of the mesenteric glands are subject. Tympanites is caused by putrid fermentation, and sometimes appears as a rounded or oval distention of the large intestine. Neither during nor after the administration of chloroform is its form changed. Long-continued mechanical obstruction to the circulation of faecal matter and gas may give rise to intense tympanites. Such an obstacle may consist in a narrowing of the intestine by contraction, or by the presence of a fibrinous band. A cure sometimes results from the spontaneous rupture of such fibrinous bands. A case is narrated in which excessive and almost fatal tympanites, recurring after each meal, was due to the action of ascarides. When they were removed the tympanites ceased to reappear.

A. F. C.

Moncorvo: Salol in the Treatment of Diarrhoea of Malarial Origin in Children. (*Rev. Mens. des Mal. de l'Enf.*, October, 1890.)

The author has held the belief for several years that the intestinal tube was the seat of abnormal fermentation in cases in which the organism is the subject of general infection. Bacteriological investigation of the intestinal contents of individuals with infectious diseases have been made, and a great number of micro-organisms have been found, some of which were evidently living there and multiplying in the normal course of events, while others were associated with general intoxication. Such diseases as typhoid fever, cholera, etc., in which the germ is in the intestinal mucous membrane, are excluded. Especial attention has been given by the author to those cases in which enteritis has been superadded to certain infectious diseases in children, such as malaria, variola, rubeola, varicella, and yellow fever. The climate of Brazil, in which country the author resides, is such that malarial intoxication exceeds in gravity and frequency all the other infectious diseases from which children suffer. With this disease enteritis is very frequently associated, and it is of so grave a character that it often determines a fatal issue. The difficulty of treating intestinal troubles with enemata which are designed to reach the greater portion of the intestinal tract is considerable, and the author does not agree with the statement of Monti that intestinal irrigation is a matter of facility; in fact, he has found it very difficult to throw his injection beyond the ileo-cæcal valve.

Hence the necessity of using therapeutic agents by way of the mouth and stomach. Naphthalene was first tried in the class of cases under consideration with considerable satisfaction, but naphthol was subsequently found more efficient. Salicylate of bismuth was also very efficient in cases in which the flux was considerable. Salol was next tried in forty cases of malarial diarrhoea, and the results of its use are embodied in the following conclusions :

1. Salol may be considered a valuable agent for intestinal antiseptics in children of any age who are affected with enteritis or entero-colitis of malarial origin.

2. The intestinal flux diminishes and then disappears under the influence of salol, its deodorizing effect upon the stools becoming manifest almost immediately after its use is begun.

3. The gases resulting from intestinal fermentation are not produced as long as salol exercises its antiseptic action. The colic and vomiting also cease in a very short time.

4. The drug is well tolerated by children of all ages, and in none of the author's cases did it produce the least sign of intoxication.

5. The doses employed varied from fifteen centigrammes to two grammes in twenty-four hours, according to the age and gravity of the case.

A. F. C.

II.—MEDICINE.

Ziemssen: *The Pathology and Treatment of Scarlet Fever.* (*Rev. Mens. des Mal. de l'Enf.*, October, 1890.)

With reference to the treatment of this disease, of first importance is the use of cold and warm baths and cold affusions, as one is accustomed to treat typhoid fever. When patients are in an adynamic condition warm baths and alcohol will be especially serviceable, and cold affusions should be avoided. Antipyretic agents may be of service, but not of the highest service. If the tonsils are covered with diphtheritic deposits, these deposits should be removed with forceps, and the raw surface touched with concentrated carbolic acid. Gargles are not sufficiently effective for the removal of false membrane. In severe cases carbolic acid may be injected into the tonsils and the soft palate. The author attaches little value to the treatment of infiltration of the lymphatic glands and the cellular tissue of the neck, though an incision should be made if there is fluctuation. Coryza and otitis media should be treated cautiously, the latter by early paracentesis of the tympanum.

If there is nephritis, warm baths should be used, the body being then wrapped in woollen coverings. The bath should last half an hour to an hour, and the woollen covering should be used one or two hours. If there is chronic nephritis, vapor baths are preferable to hot water. In some cases perspiration follows the warm bath only after several hours. Aside from the baths, one may use pilocarpine, alkaline waters, champagne, and milk. Of drugs, the most efficient are digitalis, liquor ammoniæ, and acetate of potash. The patient must be watched with especial care during convalescence. A. F. C.

Brandenburg: Tuberculosis in Early Childhood, with Especial Reference to the Subject of Heredity. (*Rev. Mens. des Mal. de l'Enf.*, November, 1890.)

The author's analyses of two hundred and fourteen cases of tuberculosis, which were studied at the Children's Hospital at Basel,—the children being all under five years of age,—the following conclusions were reached:

1. Heredity in its strictest sense was not observed in a single case.

2. On the other hand, in about one-third of the cases the causes of infection could be traced to tuberculosis in the family. In the other two-thirds there was no evidence available of tuberculosis in the home-surroundings.

3. In forty-four per cent. of the cases the mother had tuberculosis; in twenty-four per cent. the father had the disease; and in thirty-two per cent. brothers or other relatives were suffering with it.

4. The source of infection in the family was phthisis in forty-four per cent. of cases; miliary tuberculosis in forty-three per cent.; and osseous tuberculosis in thirty-four per cent.

5. The mother had phthisis in forty-eight per cent. of cases; the father in forty-one per cent.; both parents in four per cent.; other members of the family in seven per cent. Miliary tuberculosis was found in the mother forty-four times; in the father, sixteen times; in other members of the family, forty times. Bony tuberculosis existed in the father in forty-one per cent. of cases; in the mother, in twenty per cent.; in other members of the family, in thirty-three per cent.; in remote relatives, in six per cent.

6. Conditions of debility were present in thirty-seven per cent. of the cases analyzed.

7. The digestive apparatus was the medium by which infection was received in the greater number of cases.

8. Operations in consequence of local bony tuberculosis were frequently the cause of general infection.

9. For general miliary tuberculosis, the point of departure of the infection is most frequently a cheesy focus in one of the lungs.

10. Tuberculosis is propagated exclusively by direct infection.

A. F. C.

Heutinel: Acute Tuberculosis in Children. (*Rev. Mens. des Mal. de l'Enf.*, November, 1890.)

Acute miliary tuberculosis, without being peculiar to childhood, is more frequently seen in children than in adults, and may assume certain peculiar aspects which are of especial importance in the way of prognosis. The typhoid form is especially manifested by general phenomena, which may be exactly those which belong to typhoid fever. Thus its beginning is less rapid than other forms,—when it is preceded by malaise. In this form of tuberculosis there are very few râles in the chest. The fever is regular, but it does not present the so-called inverse type which has a certain diagnostic value. The skin preserves its vitality, and the derma is not so easily cut as in typhoid fever. These distinctive signs should be utilized in difficult cases. Remissions, lasting a longer or shorter period of time, are not rare in the different forms of acute tuberculosis. The suffocative form is rarer in children than in adults. It is characterized by excessive dyspnoea, the symptoms of which suggest asystole in some cases and asthma in others, but it is never accompanied with râles in the chest. In children, on the other hand, there is almost always a more or less abundant catarrh. That which admonishes one of the gravity of the situation is the disproportion between the râles, which are few in number, and the intensity of the dyspnoea. The prognosis is the more grave since the course of the disease may be extremely rapid in children. Death may occur within eight or ten days from the beginning of the disease, and in some cases it occurs even in a shorter period. The differential diagnosis between this disease and capillary bronchitis is very difficult.

A. F. C.

Feer: Congenital Spasmodic Tabes. (*Rev. Mens. des Mal. de l'Enf.*, November, 1890.)

The author reports nineteen cases of this disease, which came under his personal observation. In addition to these he gives an analysis of one hundred and sixty cases, which have been recorded in medical literature mostly under the name spastic spinal paralysis. Spasmodic tabes is relatively a rare disease. Naef thinks it is seen only once in one thousand cases of children who are admitted to hospitals. It is characterized by

tonic contracture, and not by paralysis of the muscles of the lower extremities. The muscles which are most often involved are those of the calf and the adductors of the thigh. This gives to the patients a characteristic gait. There is forced extension of the feet in talipes equino-varus, and adduction of the knees, so that the child crosses his legs in walking, and only touches the bottoms of his feet near their tips. The reflexes are always increased. In very bad cases there is a certain degree of rigidity of the muscles of the trunk and of the arms, the muscles of the nucha, of deglutition, of phonation, and rarely of the face. In many cases there is spasmodic strabismus, and in all cases the intelligence is more or less diminished. Convulsions are frequent. The disease is usually observed by the parents between the first and second years of life. It may remain stationary or it may retrograde. Concerning its etiology, in two-thirds of the cases the disease is due to some unfavorable condition at birth, especially to premature or difficult labor. Many of the severe cases should be regarded as cases of intrauterine cerebral disease. The anatomo-pathological changes consist essentially in atrophy and sclerosis of the motor regions of the brain and pyramidal fasciculi. The process is particularly a result of arrested development of the cortico-medullary fasciculi, which most frequently follows difficult parturition. This disease should be differentiated from multiple sclerosis and from poliomyelitis. The treatment consists in remedying the deformity of the feet, perhaps by tenotomy of the tendo-Achillis, fixation of the limbs in a proper position, massage, and electricity.

A. F. C.

Neumann: Bacteriological Investigations concerning the Etiology of Pneumonia in Children. (*Rev. Mens. des Mal. de l'Enf.*, July, 1890.)

Bacterial investigations in a number of cases of pneumonia in children led the author to the conclusion that the pneumococcus of Fränkel is the unvarying cause of fibrinous pneumonia in children, the same as it is in adults. The same organism is also to be found in most of the cases of broncho-pneumonia in children. In sixteen cases of broncho-pneumonia, nine of which were consecutive to measles, the pneumococcus was found ten times. It is often very difficult to find the pneumococcus in broncho-pneumonia on account of its frequent association with other micro-organisms, including the streptococcus aureus et albus, streptococcus pyogenes, proteus vulgaris, and bacillus pyocyaneus. If the pneumococcus is not found, one must remember that it was present at the beginning of the

disease, but has become attenuated, and has disappeared as the disease has progressed. The presence of the organism is an evidence of the existence of pneumonia, but the absence of the organism does not necessarily indicate that pneumonia is not present. Prophylaxis against pneumonic infection should be carried out by means of thorough ventilation and cleanliness of the apartments occupied by children with pneumonia, also by disinfection of the buccal cavity, and calling attention to the danger residing in the sputa of patients with pneumonia.

A. F. C.

Carstens: Influenza in Children. (*Rev. Mens. des Mal. de l'Enf.*, October, 1890.)

The author's paper is based upon a study of twenty-seven cases of influenza in children, which showed certain interesting facts relative to the progress of the disease. In most of the cases the disease began more gradually than it usually does in adults. It was usually preceded by malaise, lasting several days, but in some cases the duration of this stage of incubation was several weeks. With very young children there was usually restlessness at night, and they refused to eat. In older children there was complete loss of appetite, with high temperature, general torpor, and pain in the head. When the disease was fairly under way there was fever and aggravation of the symptoms already referred to, this being especially noteworthy in connection with the head symptoms. In some of the cases the disease began suddenly with headache, abdominal pain, and vomiting. In most of the cases of this disease, in adults, the trouble seemed to be localized in the mucous membrane of the respiratory passages. But in children there was usually an intense cough, which was more or less convulsive in character, and there was rarely any catarrh of the respiratory passages. If bronchitis were present, it was usually dry in character and limited to the inferior and posterior surfaces of the lungs. In some cases there was a moderate degree of dulness in certain portions of the thorax, suggesting catarrhal pneumonia of moderate intensity. In many instances the cough continued after the fever had disappeared. Constipation was observed rather more frequently than diarrhoea, and in four cases in which there was diarrhoea there was also slight tympanites and abdominal pain. The symptoms connected with the brain and nervous system were very prominent. There was constant agitation and crying in very young children, excessive frontal headache, especially in the latter part of the day, lancinating pains in the limbs, especially the lower limbs, and neuralgias in all parts of the

body. In other cases there was persistent somnolence, but never loss of consciousness or delirium. The symptoms referable to the circulatory apparatus showed nothing peculiar. Though the pulse might be frequent, it was unattended with rise of temperature. Examination of the urine always gave negative results. In three cases there was swelling of the spleen, and in one a dermatosis resembling urticaria. In two cases there was intense pain in the ears, in one there was photophobia. In one case the disease was complicated with croupous pneumonia and in another with intermittent fever. The cases may be divided into three groups:

1. Those in which the fever was ephemeral in type.
2. Prolonged cases with or without bronchitis.
3. Complicated cases.

A. F. C.

Saint-Ives, Ménard: Diphtheria in Birds and in Human Beings. (*Rev. Mens. des Mal. de l'Enf.*, August, 1890.)

Clinical observation and pathologico-anatomical investigation have shown that diphtheria in birds differs essentially from diphtheria in man. The author has demonstrated the fact bacteriologically. Diphtheria in birds is characterized by an exudate which is produced upon the surface of the buccal and pharyngeal mucous membrane, which invades the nasal fossæ, the lachrymal ducts, and often accumulates upon the eyelids. This thick exudate, caseo-purulent in character, suggests tuberculous matter, but differs absolutely from the fibrinous membrane of diphtheria in human beings. Diphtheria in birds, though very contagious, is never transmitted to man. Children have been employed in caring for birds with this disease at the Jardin d'Acclimatation. Attendants for birds at Halles, though accustomed to feed Italian pigeons from mouth to mouth, the birds being affected with diphtheria, are never infected by the disease. According to Löffler, Cornil, and Straus, the microbe of human diphtheria is a short bacillus, not as long as the bacillus tuberculosis, but thicker than the latter. This microbe is not developed at a temperature above 22° to 24° C., and therefore will not multiply on nutritive gelatin at a temperature of 18° to 20° C. The microbe of diphtheria in birds is a straight bacterium, resembling the microbe of chicken cholera or of septicæmia in rabbits. It may be cultivated on gelatin at a temperature of 18° C. It may also be cultivated on potato, while that of human diphtheria cannot. The bacillus of human diphtheria, inoculated in the cellular tissue of the rabbit or pigeon, will quickly prove fatal. At the point of inoculation there is a fibrino-hemorrhagic exudate.

A. F. C.

Davison: Notes on Diphtheria in Animals and Man. (*British Medical Journal*, October 25, 1890.)

This paper is a summary of extensive investigations carried out during an epidemic of diphtheria in Buenos Ayres. The evidence seems to point strongly to the direct infection of children from hens and other animals.

Railton: Cases of Congenital Syphilis. (*Medical Chronicle*, July, 1890.)

These cases all occurred in one family, and are of interest on account of the severity of certain symptoms in the children and the perfect immunity of the mother. The first two children were still-born. The third, now nine years old, has an enlarged liver and an enormous spleen, which occupies the whole left side of the abdomen, and extends into the cavity of the pelvis. Neither the eyes, teeth, nor bones show trace of the disease. The fourth child has the typical notched and pegged teeth. The fifth, in addition to other symptoms, is hemiplegic. The sixth and seventh are healthy.

Ashby: A Case of Cerebral Softening in a Syphilitic Child of Fourteen Months. (*Medical Chronicle*, March, 1890.)

It is easy to refer symptoms arising in a syphilitic child to syphilis, but the part which that disease plays in producing the brain lesions of infancy is not readily defined. It is certain that gummata are not often found. The brain lesions, most certainly specific, are those in which endarteriitis occurs, accompanied by thrombosis of the smaller arteries, and a consequent softening of the brain-substance. Such cases are not common, and when seen are worthy of record. The case reported by the author, after showing the typical symptoms of syphilis, began to suffer from convulsions at eight months. At first the left side alone was involved, but later the right became effected, and this, in turn, was followed by permanent rigidity. The child died of exhaustion.

Upon autopsy an excess of fluid was found beneath the arachnoid, but there were no adhesions. The convolutions were slightly flattened. Upon cutting into the gray matter it was found to be softened. The superficial layer had undergone the most marked change, and was streaked with a white glistening substance where it had undergone fatty degeneration. This was most distinct over the right hemisphere. Microscopical examination of the gray matter showed complete fatty degeneration, the caudate cells being discovered with difficulty. The walls of the minute arteries and capillaries were fatty.

The arteries of the pia and the medullary arteries were thrombosed, containing a sort of core which had shrunk away from the sides of the artery. In places there was evidence of periarteriitis. This condition was not confined to the region of one artery, but was general over the convex surface of both hemispheres. The author regards it as a chronic meningoencephalitis, resulting in softening of the cortex, and, possibly, if the child had lived, going on to sclerosis.

Playfair, John: Croupous Pneumonia in Children. (*Edinburgh Medical Journal*, October and November, 1890.)

This paper is based on thirty cases of croupous pneumonia. Of these, but two occurred in children under two years. Seventeen occurred between two and six years, and eleven between seven and twelve years. The right lung was affected in sixteen cases, the left in eleven, and both lungs in three. In twenty-one cases the disease occurred at the base, in eight at the apex. Cases of apical pneumonia all made good recoveries. Prognosis seemed to be little affected by the region of lung involved.

Measles seems to have preceded the pneumonia more frequently than any other disease, but the author does not state how close was the relationship in point of time. The onset was usually sudden, more so, in fact, than in the adult, and was marked by vomiting, purging, headache, or fever, but rarely by a rigor. Crises occurred in twenty-one cases; the earliest being on the third day, the latest on the fifteenth. By far the greater number took place on the fifth or sixth day.

Nervous symptoms were noted in eleven cases, and of these but five were of a grave nature. The region of lung involved seemed to have no influence in the production of nervous symptoms. No satisfactory explanation for their occurrence could be discovered.

Pleurisy occurred as a complication in six cases, but in only one did it prove serious. Bronchitis occurred as a frequent complication, and the author believes it is not as well recognized as it should be. In five cases the croupous pneumonia was complicated by marked bronchitis, and, possibly, the author thinks by a catarrhal pneumonia. Gastric and intestinal irritation was very common.

The delay in the establishment of physical signs is one of the most marked characteristics of pneumonia in children. This is especially commented upon by the author as well as the rapidity of the disappearance of signs during convalescence.

Treatment was mainly expectant. Slight counter-irritation was occasionally employed, but continuous poulticing was

regarded as harmful. Antipyretics were rarely administered, but tepid sponging was considerably employed. Alcohol was not given till about the time of crisis.

Detailed histories of a number of cases are of much interest. From the data given there is some reason to doubt whether a few of these cases were not of the catarrhal rather than of the croupous type.

Parker: Asphyxia due to a Bronchial Gland ulcerating into the Trachea. (*The Lancet*, October 14, 1890.)

The patient was an infant twelve months old, and previous to the onset of the dyspnoea was believed to be in perfect health. Suddenly and without obvious reason the infant was seized with urgent dyspnoea.

Some temporary relief followed tracheotomy, but no satisfactory explanation of the dyspnoea could be found.

The child died within an hour and a half of the commencement of the attack.

At the post-mortem examination a caseous gland, which had ulcerated its way into the trachea, was found just above the bifurcation, occluding one bronchus entirely. There had been no symptoms to attract attention to such a condition.

Simple, Armand: A Case of Chorea treated by Arsenic, followed by Paralysis and Pigmentation of the Skin. (*The Lancet*, January 14, 1890.)

The patient was a boy six years of age. The movements were rather violent, and affected the limbs and face equally on both sides. There were no rheumatic or cardiac complications excepting a slight systolic murmur, which developed after admission. There was a history of rheumatism in the father.

After taking arsenic about four weeks he developed slight fever and anorexia, and a few days later some weakness in the right arm and both legs. A few days later brown pigmentation of the skin was noticed in the axilla and popliteal spaces. This rapidly increased until the whole body was pigmented, except the face. The paralysis of the legs affected chiefly the extensors of the feet and toes; the knee-jerks were absent, and the reaction of degeneration was present. There was marked wasting of the legs. The upper limbs were scarcely at all affected. The treatment employed was small doses of the iodide of potassium and massage.

At one time the gait was like that of locomotor ataxia, but later it was that of peripheral neuritis.

The question arises whether the paralysis was that which sometimes follows chorea, or whether it was due to the effect

of arsenic. The coincidence of the paralysis and pigmentation point to the arsenic as the cause. The case is further remarkable that these two rare symptoms of arsenical poisoning should have been the only ones observed except the slight malaise and rise of temperature.

Wheaten: External Hydrocephalus. (*The Lancet*, November 8, 1890.)

The patient was a child aged seven months; the enlargement of the head was first noticed at the age of three months. The child presented the appearance of an ordinary case of hydrocephalus, with the exception of great dilatation of the vessels of the scalp and the redness over it. The head measured eighteen inches in circumference; there were no signs of intellectual impairment of paralysis. During an attack of diarrhœa the head diminished in size. The temperature was characterized by periods of pyrexia alternating with periods when the temperature was normal. At the necropsy, when the dura mater was incised, eight ounces of clear fluid escaped on the left side and a little more than eight ounces on the right side. The dura mater on both sides was found to be lined by a thick adherent membrane, the outer layers of which were tough and pink in color, the inner soft, felted, and flocculent. This membrane extended to the base of the skull and to the tentorium, where it was joined by a thin soft layer of lymph which passed upward over the surface of the hemispheres; the fluid evidently had occupied the space between these two membranes on each side. The cerebral hemispheres were shrunken; the ventricles not at all dilated; there was no other disease except that the spleen was enlarged, fibrous, and adherent.

Professor Henoch, in his work on diseases of children, says that the chief points in favor of the diagnosis of external hydrocephalus is the slight development of cerebral symptoms and absence of intellectual impairment.

Dr. Wheaten would add to these signs of affection of the spleen periods of normal temperature, alternating with pyrexia and marked congestion and redness of the scalp.

Jenkins, Thomas: Two Cases of Chorea dependent upon the Presence of Intestinal Worms. (*The Lancet*, September 27, 1890.)

The writer reports two cases; one had two attacks within twelve months, a similar cause operating on each occasion. They were well-marked examples of the disease. One patient vomited a round worm. He was treated with one teaspoon-

ful of oil of turpentine followed by senna. Recovery was prompt. The other case had suffered twelve months, during which time many drugs had been employed. He was finally sent away for change of air. The choreic movements became very violent. Oil of turpentine was administered with the result that a number of round worms were discharged. The patient was sent home well in a few days.

Hadden: Head-Nodding and Head-Jerking in Children, commonly associated with Nystagmus. (*The Lancet*, January 14, 1890.)

This paper discusses twelve cases of the affection. Full notes of five cases are given. This affection is usually confused in the text-books with a special variety of epilepsy. The author does not deny the possibility of an alliance with the latter disease.

The cases are characterized by nodding or lateral movements of the head either singly or associated with one another or with movements of rotation. These movements may be almost constant or may occur more especially during efforts at fixation or during excitement, always ceasing during sleep, and when lying down. In most cases there is nystagmus of one or both, vertical, horizontal, or rotatory, often occurring simultaneously with the onset of the head-symptoms but sometimes preceding or following them. The nystagmus is much more rapid than the head-movements, and has an independent rhythm; it is aggravated by fixation or by forcibly restraining the head, and may even be induced, when previously absent, by these means.

CASE I.—Nodding of head, with occasional lateral movement; vertical nystagmus of eyeballs and eyelids; attacks of unconsciousness, with deviation of eyes; throwing back of the head an early symptom.

The patient was a female, aged seven months. The mother gave an account of a severe fright when six months pregnant. Family history was good; mother had had no miscarriages. The patient was the sixth child, and none of them had had convulsions.

Labor was normal; though healthy when born, the mother said that the child used to throw back the head and look through the half-closed eyes. The eyes began to move at the age of six weeks and the head-movements came on when the child was two months old. There was no history of injury. The general condition of the child was excellent. For ten weeks there had been a yellowish discharge from the ears. There was no rickets. During the attacks it was observed

that the eyes deviated strongly to the left and downward, the head also turning in the same direction. An examination revealed pupils active to light; ocular excursions good; convergence also good. Ophthalmoscopically, both fundi normal. The child was treated with bromide of potassium and other drugs symptomatically. There was improvement in some symptoms during the year and a quarter that she was under observation.

CASE II.—*Head-jerking, chiefly from side to side; horizontal nystagmus; attacks of unconsciousness with deviation of eyes; throwing back of the head to look at objects.*

The patient was a male, aged ten months. There was no history of neurosis in the family. Three months previously he fell, striking the back of his head, but the injury was probably trivial. The child had never suffered from convulsions and was not the subject of rickets. There was horizontal nystagmus of both eyes, constant in the left, exaggerated on extreme conjugate to left side, and least of all on conjugate deviation to right. Ophthalmoscopically, the fundi were healthy. During sleep the movements of the head and eyes ceased.

The child recovered fully in about six months from the beginning of treatment, and remained well as long as a year and nine months after the first visit. The treatment consisted of bromide of potassium and later iodide of potassium.

CASE III.—*Side-to-side movements of head after head injury; subsequent occurrence of nystagmus, vertical in right, horizontal in left, eye; peculiar method in looking at objects; rickets; convulsions; fits of laughter.*

The patient was a female, aged eight months. She was the tenth child. Four had had convulsions. She had never had convulsions or any attacks like petit mal.

The child fell from a chair, striking the left side of her head, but did not seem to be much hurt. The movements began five or six days later. The child was good-tempered; there was some beading of the ribs. There were no teeth. The fontanelles were open. The nystagmus persisted when the head-movements stopped; vision was good; the ordinary movements of the eyeballs unimpaired and the disks normal. She had several convulsions. She finally became free from these, but the head-jerking and nystagmus persisted.

CASE IV.—*Vertical nystagmus of one eye only following head injury; side-to-side movements of head four months later; peculiar method of looking at objects; two relapses following falls on the head.*

The patient was fourteen months old. There was a history

of three severe falls. The movements of the eyes were noticed a week subsequent to the last fall. There was no history of fits. No evidence of rickets was found.

About a month after he came under observation he suffered one evening from convulsions with screaming. About this time he fell on the left side of the forehead. The next day he had some nystagmus, but it only lasted about five minutes. The treatment consisted of steel wine and cod-liver oil. For a month he was treated with rhubarb and soda, and salt-and-water injections for thread-worms. For a time he also had bromide of potassium.

CASE V.—Lateral nystagmus following a severe head-injury; recurrence after a year with occasional head-movements; peculiar method of looking at objects; convulsions; mental change.

The patient was a boy aged fourteen months. The child had fallen from a high chair to the floor, striking the left side of his head against the boards.

Two weeks after the fall the movements of the eyes began. The movements ceased in a day or two and the child remained well for two months. He then had some fits at night, probably convulsive.

No recurrence of the nystagmus took place for a year. Six weeks later he had occasional head-movements. Thirteen months after the injury all movements ceased and remained so as long as eighteen months. His disposition was changed. He became less intelligent; was forgetful and irritable. The treatment was bromide of potassium in six-grain doses.

The author next gives a detailed analysis regarding the head-movements in eleven cases. In one the movements were purely nodding; in four lateral; in one a combination of lateral and rotatory; and in three a combination of nodding and shaking or lateral movements.

The muscles affected are, according to Henoch, the muscles which rotate the head as well as the sterno-mastoid. The nystagmus was rapid, four or six movements a second. It is often continuous though aggravated by attention, by efforts at fixation, or by forcibly straining the head-movements.

Occasionally nystagmus will make its appearance when the head is held, though previously absent. Nystagmus is usually present in both eyes, but often one is more affected than the other. In three cases the movements were strictly uniocular.

Larsen: , A Case of Cerebro-Spinal Meningitis complicated by Disease of Internal Ear; Necropsy. (*The Lancet*, November 1, 1890.)

The author reports the case of a girl, seven years of age,

who suffered from this disease complicated with ear-disease. She was suddenly taken ill with rigors, fever, vomiting, etc. There was no previous history of ear-trouble. The symptom of disordered function was observed on the tenth day, and she became completely deaf on the sixteenth day. The question arises, which way the inflammation travelled to reach the labyrinth.

The writer's conclusion, based on this and other cases, is that the inflammation spread from the meningitis to the labyrinth. In this way the perilymphatic space of the labyrinth could be injected; while another road leads from the brain along the sheaths of the nerves directly to the membranous labyrinth.

III.—SURGERY.

Foltanck: *Empyema in Childhood, with Especial Reference to its Surgical Treatment.* (*Jahrb.f. Kinderh.*, xxxi. 3.)

It is exceptional either in childhood or adult life that empyema should be recovered from without surgical interference. There are three ways in which recovery may occur without an operation:

1. The fluid matter may be absorbed; the solid matter undergoing fatty degeneration and then being absorbed also, or remaining as a cheesy mass upon the pleura. Such a process may be a forerunner of tuberculosis, the thorax also undergoing contraction.

2. The purulent exudate may work its way outward, troublesome fistulæ remaining, and the process being a long and troublesome one.

3. The pus may penetrate a bronchus and be expectorated through the lungs. All these processes are not only slow but dangerous.

The presence of a purulent exudate is indicated by great variations in the temperature-curve, by chills, by rapid rise in the body heat in cases in which there has previously been no fever.

An important point in the differential diagnosis is the presence of peptone in the urine, other diseases being excluded, in which the urine may contain this substance.

The most certain means of determining the presence of an exudate, either serous or purulent, is an exploratory puncture with a disinfected syringe through an intercostal space. The sixth

or seventh space, in the middle axillary line, is the most favorable location for such an operation. A diagnosis of empyema having been made, the following questions must be answered :

1. When should one operate?
2. At what location should the operation be performed?
3. What method of operation should be preferred?
4. The proper after-treatment?

There are indications for an operation,—

1. When the quantity of the effusion is so considerable that danger to the circulation and the respiration will result. This indication is seldom present in children on account of the great elasticity of the thoracic walls.

2. When the purulent exudate has penetrated the lungs, and there are chills, fever, and offensive odor of the sputa.

3. When the pus seems about to make an exit through the thoracic wall.

4. When the exudate persists in the pleural cavity longer than six weeks.

As to the proper location for an operation, only those cases are considered in which the pus is free, not encapsulated, in the pleural cavity. For the left side the best location for an incision is in the sixth or seventh intercostal space, in the middle or posterior axillary line. For the right side the fifth or sixth space should be chosen. Drainage will be facilitated by raising the pelvis upon a pillow; a wood-wool pillow is preferable.

The varieties of operations may be divided into three groups :

1. Simple puncture, or puncture with aspiration, or puncture and irrigation with an antiseptic fluid, or puncture with the introduction of a permanent canula, or permanent aspiration-drainage.

2. Opening by means of an incision and drainage.

3. Opening with resection of one or more ribs, and drainage.

The object of an operation is the complete removal of the pus in the pleural cavity, and as speedily as possible. A trocar will be better for this purpose than a needle if the pus is thick and contains clots of fibrin. If the cavity is irrigated, only weak antiseptic solutions should be used. If a tube is left in the wound for drainage, it must be fitted with a valve, which will close during inspiration that air may not enter the cavity. In general, the operation of puncture should be employed only for thin sero-purulent exudates, and it should not be practised oftener than twice. In all other cases it should be done only as a vital indication when there is no time for a radical operation, or when the latter would be unsuitable for other reasons. If incision and drainage are practised, the dressing must be changed twice daily at first, then once daily,

and after fourteen days the dressing may remain unchanged for two or three days. Irrigation should be practised only when the secretion becomes offensive, or the temperature becomes elevated.

The advantages claimed for incision with removal of a portion of rib are that better drainage is secured in this way, and that danger of hemorrhage will be avoided. This operation should not be performed as a rule; there are exceptional cases in which it will be required. Simple fresh cases of empyema are best treated by incision without resection of bone.

The after-treatment should aim to prevent contraction of the thorax, as far as possible. The lung upon the diseased side must be exercised by full inspirations. The patient should be taught to lie on the healthy side while sleeping, and a pillow may be placed under that side, so that more work will be thrown upon the lung of the opposite side. Expansion of the diseased side may also be assisted by alternately raising and lowering the arm upon that side with inspiration and expiration.

The author publishes histories of four punctures and seventeen incisions for empyema. Two of the punctures resulted in success and two in failure. Of the incision cases four were fatal. The average period for recovery in the successful cases was eleven weeks.

A. F. C.

Seibert: *Surgical Treatment of Erysipelas in Children.* (*Journ. de Méd. de Paris*, August 17, 1890.)

Three cases of erysipelas are reported by the author, which were successfully treated by the method of Riedel and Lauenstein. This method is a modification of that of Kraske, which consists in making incisions at the periphery of the diseased skin and into the healthy tissue beyond. These are crossed by other incisions extending into the diseased tissue, the area being sterilized with a mixture consisting of a five per cent. solution of carbolic acid and a one to two thousand of sublimate. The incisions into the healthy tissue are carried two inches beyond the border of the diseased. In the author's three cases the patients were anæsthetized during the operation, which was performed under the most rigorous antisepsis. These methods indicate an advance over less recent ones, in which there was merely a scarification of the erysipelatous tissue in numerous places, moist dressings being then applied, or in which hypodermic injections were made in the healthy tissue contiguous to the diseased with a two-per-cent. solution of carbolic acid. As to the latter, they did not accomplish the desired end; the scarifications of the erysipelatous tissue closed too quickly to exclude the micrococci; and the hypodermic injections into the

healthy tissue were dissipated so quickly into the circulation that there was danger of toxic results from the carbolic acid without the destruction of the microbes which it was desired to destroy.

A. F. C.

Fountain, H. L.: Removal by Tracheotomy of a Safety-Pin, which had remained in the Larynx One Year. (*Texas Med. Journ.*, 1890, vi. 112.)

One year previous to the operation, the child, by a sudden inspiration, sucked a medium-sized safety-pin into the larynx. It was immediately seized with convulsions and difficult breathing, but the pin was not removed. The severe symptoms gradually subsided until the child was fairly comfortable, though there was a complete loss of voice. Further medical advice was not sought until the child's throat began to swell, and it had frequent attacks of coughing and difficult breathing, which would terminate in a free discharge of pus through the mouth. These attacks were of daily occurrence. The laryngoscope revealed a very much swollen condition of the glottis—the rima being almost closed—and the base of the tongue; and a dark object projecting up between the vocal cords could be detected, but it was impossible to seize it with the forceps. The next day the child was anæsthetized, and after tracheotomy the pin was removed without difficulty. It was very much corroded and covered with pus. The child did well. The power of speech gradually improved, and is now as good as that of any child four years old.

Redard: A New Method of Treating the So-Called Congenital Luxations of the Hip-Joint. (*Rev. Mens. des Mal. de l'Enf.*, November, 1890.)

Two methods have recently been proposed for the cure of congenital luxation of the hip-joint; one is the bloody method, advocated at the Berlin Congress by Kölliker, Hoffa, and Karewski; the other, the mild method, consisting principally of prolonged continuous extension, to obtain decided amelioration, and advocated by Volkmann, Barwell, Motta, and W. Adams. The first method does not always succeed, and is frequently objected to by the parents of the patients. The method which the author proposes is a mild method, and was recently brought forward by Paci, of Pisa. It consists in a number of manœuvres intended to cause the descent of the luxated head of the femur and to bring it to a plane anterior to that of the external iliac fossa, at a point near that which it should occupy in the cotyloid cavity, or even into that cavity. A perfect reduction is not always possible in such cases

on account of the deformity of the acetabulum, but a better position may be obtained, which will give a solid bony support for the head of the femur upon the os iliacum, and this may result in the formation of a ne-arthritis, correction of the shortening of the limb, of the lordosis, and of other inconvenience arising from the luxation. Paci has followed out the studies of Fabbri in his method, and thinks that success may frequently be obtained because the capsule has not been torn, and the muscles, not having undergone traumatism, will offer only a moderate resistance. The obstacles to reduction in congenital luxations are furnished by the pelvi-trochanteric muscles, the muscles of the thigh and leg, these muscles having been contracted, retracted, shortened, and changed as to their direction, while the bones, the capsule, and the ligaments may not be changed. Paci's aim is to effect leverage upon the luxated bone, and cause relaxation of the muscles, following out Fabbri's idea of directing the luxated bone in a manner which is inverse to that which was exerted by the force originally causing the luxation. The method consists of four steps. The patient is placed upon a resisting plane, the pelvis is fixed, and the thigh is fixed on the pelvis, the leg upon the thigh. Flexion should then be accomplished to the utmost extent. This causes relaxation of the muscles attached to these bony structures, descent of the head of the femur, and compels the great trochanter to describe, below, an arc which is inverse to that which is described above by the other extremity of the femur. As flexion begins leverage is produced, in which the point of support of the head of the femur is upon the iliac fossa; but as flexion continues and the head of the femur descends, the point of support is changed to the insertion of the triangular ligament at the neck of the femur. As flexion is completed, the head of the femur will be found at or near the top of the cotyloid cavity.

In the second step, a slight movement of abduction is impressed upon the femur, the muscles, bones, and ligaments offering no resistance. This is designed to place the head anterior to the cotyloid cavity, if the descent has been complete, or against its posterior border, if the deformity of the neck of the femur and the muscular resistance have arrested it.

In the third step, abduction being maintained, a slow and gradual movement of external rotation is effected until the axis of the leg, which is flexed at a right angle upon the thigh and in abduction, is perpendicular to the axis of the patient's body. By this means the head of the femur will be brought more and more to an anterior plane and to the portion of the os iliacum, which corresponds nearly to the cotyloid cavity.

In the fourth step, extension of the thigh is slowly accomplished, one hand being pressed gradually upon the knee, the other holding the foot and the flexed leg, the whole limb being turned outward. At this juncture the head of the femur takes its point of support upon the os iliacum, and the relaxed muscles of the thigh become elongated and distended, and as extension progresses they resist and are contracted, it being necessary that this contraction be overcome by the surgeon's arm. It will soon yield to a moderate outlay of force, and the thigh can be completely extended. Then with the left hand upon the knee the leg can be slowly extended upon the thigh. The head of the femur will be kept in its new position by the muscles. These movements should be made with great gentleness, but anæsthesia will not usually be necessary. By this measure shortening of the limb, protrusion of the great trochanter, lordosis, etc., will be relieved. The limb should be kept in an immovable apparatus for a month, and this should be followed by extension for three months.

A. F. C.

Maddox, D. S.: Another Case of Spontaneous Gangrene in a Child. (*New York Med. Rec.*, 1890, xxxviii. 349.)

The patient was a boy, between five and six years old, and was brought to the attending physician to look at "a black spot on his foot." Examination revealed a dark-colored patch, possibly as large as a silver quarter, over the metatarsal joint of the great toe. The child had always been healthy and no history of injury could be elicited. A weak solution of carbolic acid was used as a topical application and the foot enveloped in cotton batting. Four days later the disease had spread considerably, but in other respects the child appeared to be in good condition. On visiting the child two days later, or six days from the first visit, the child was found in a dying condition, and the foot was black and shrivelled clear up to the ankle-joint. It was learned that the child, while sitting on the floor playing, an hour before his death, fainted, but soon revived and resumed his play. A little later, however, he again fell back unconscious and died.

Brackett, A. R.: Dislocation of the Humerus into the Axilla in a Child. (*New York Med. Rec.*, 1890, xxxviii. 349.)

It occurred in a child of two years, and was due to the sudden lifting of the child by the extended arm. The flattening of the shoulder and Hamilton's straight-edge test established the diagnosis without difficulty. The reduction was

made under chloroform by manipulation, the head of the bone returning to the glenoid cavity with the orthodox snap.

Jack, F. L.: Adenoid Growths in the Naso-Pharynx: Results of their Removal in Seventy Cases of Middle-Ear Disease. (*Boston Med. and Surg. Journ.*, 1890, cxxiii. 297.)

It would appear that the location of the growths had little to do with the nature of the ear disturbance. In forty-four cases, both middle ears were affected; fifteen experienced trouble in the left only, and eleven in the right ear. Among the number were two deaf mutes. In the case of one the growths offered an almost complete obstacle to the entrance of air through the Eustachian tubes. This the operation entirely removed, and the ears could be inflated with ease. Improvement in hearing was hardly expected, for in this case, as in the other, the labyrinth was already affected. There was nervous twitching in one of the mutes which suggested chorea. This quite disappeared after the operation, and when last seen, nine months afterwards, was barely noticeable. The faucial tensils were hypertrophied in seven cases and removed in two.

There were fifteen cases of purulent otitis which healed as follows:

Two weeks.....	2 cases.
One month.....	4 "
Two months.....	1 case.
Four ".....	1. "
Eight ".....	1 "
Eleven ".....	1 "
Diminished otorrhea.....	2 cases.
No improvement.....	2 "
Unrecorded.....	1 case.

There were fifty-five cases of non-purulent otitis, which healed as follows:

One to three months.....	23 cases.
Four months.....	1 case.
Eight ".....	2 cases.
Ten ".....	6 "
Eleven ".....	4 "
Twelve ".....	6 "
Twenty ".....	4 "
No improvement.....	7 "
Unrecorded.....	2 "

The results certainly show the benefit to be derived from the operation, and also give us grounds to believe that the patients will continue to be free from relapse.

Kelly, H. A.: Cephalohæmatoma—A Case of Sub-Pericranial Blood-Tumor in the New-Born Child. (*Phila. Med. News*, 1890, lvii. 229.)

The child was born after a slow labor with the help of forceps. At the outer angle of its right eye was a slight indentation in the skin from the pressure of the forceps, which disappeared in two days. A large caput succedaneum covered the occipital region. No other deformity or evidence of injury was visible. On the second day, there was observed a reniform swelling over the most prominent portion of the right parietal bone, six centimetres in length and two and a half in breadth, lying entirely within the border of the bone, which could be felt on all sides around the swelling. The concavity of its circumference looked downward towards the right ear, while its convexity was more or less parallel with the sagittal suture. The tumor distended in two or three days until it formed a prominent, rounded, tense sac. Elasticity and fluctuation were distinct. Its circumference did not appear to increase. There was no pulsation. Pressure was painful only on being prolonged, and did not reduce the size of the tumor. The scalp over it was movable and unchanged in appearance. Surrounding the whole margin of the tumor a distinct sharp ridge could be felt, and within this craterous orifice palpation at first conveyed the sensation that the bone was wanting. Deeper palpation, however, touched the bony floor.

The treatment was a policy of inactivity. In about ten days it began to diminish in size and in three weeks and a half it had almost entirely disappeared.

McArdle, T. E.: Infantile Vulvar Hemorrhage. (*Phila. Med. News*, 1890, lvii. 399.)

Two cases are reported. In each case the hemorrhage occurred on the fifth day after birth, lasted four days, and did not return. In Case I., at the time of the first examination, there was about a half teaspoonful of blood in the vagina and between the labia. This blood was bright red and the napkin was stained by it, showing that the flow was continuous. The anus was perfectly clean and healthy. There was no malformation discoverable in either case. Both are bright babies and perfectly well nourished, and have passed through their first summer without any difficulty.

Money: Empyema complicated with Pulmonary Abscesses. (*The Lancet*, October 18, 1890.)

The patient was a child fourteen months of age, with symptoms of two weeks' duration. Child was decidedly rickety.

Physical signs: Right back very dull below angle of scapula; resistance increased; cry; fremitus not lost; breath-sounds high pitched; some crackling in the right axilla. A hypodermic needle drew off pus. The empyema was opened under chloroform and half a pint of pus evacuated. The child lived five days.

At the post-mortem examination the empyema was found limited to the right lower lobe. The right lower lobe was compressed; the middle lobe was hepatized, and the upper fairly riddled with abscesses varying in size from a pea to a large filbert.

Two or three abscesses were also present in the middle lobe. The abscesses bulged the plura in places, and on section were seen to be bounded by a sharply-marked outline. The left lung presented some collapse and emphysema; otherwise healthy. No tubercles anywhere.

The question arises was the empyema or the abscess formation the prime factor? and was the other a sequence?

The escape of the compressed lobe and the other lung as well as the mediastinal glands, and the fresh appearance of the abscesses, all suggested that the abscesses followed the empyema as cause and effect. The case is instructive in showing how a case correctly treated surgically may become fatal through complications which are not amenable to surgery.

Lane: Angular Curvature; Rapidly Developing Paraplegia; Laminectomy; Recovery. (*The Lancet*, July 5, 1890.)

The patient was a man, aged thirty-two. Two years ago he noticed a pain in the middle of his back while running. Six months afterwards he noticed a prominence in the spine, which was treated as a ganglion. This soon developed into an angular curvature which continued to become more and more sharply angular at this point. About three weeks before he came under observation, he noticed that his right leg was weak and somewhat numb and that his toes were inclined to catch as he drew his foot forward. On admission he was found to be a delicate man. There was a very sharp angular curve, its apex corresponding to the spine of the tenth dorsal vertebra. His right leg lay motionless in bed. He did not notice any loss of power in the left leg, but there was some apparent paresis of the extensor muscles of the leg. The patellar reflexes were much exaggerated on both sides, and ankle clonus was present. The plantar, abdominal, epigastric, and cremasteric reflexes were absent on both sides. There was impaired sensation on both sides, extending up as high as the inguinal region.

Within nine weeks after the beginning of the loss of power he had completely lost power over both of his lower extremities. There was analgesia on both sides, and what ordinary sensation was left was very slight. The superficial and deep reflexes had become more marked. It was possible to get an epigastric reflex now on the right side, and a few days later, on the left side.

A week later he was put under chloroform and the soft parts were turned off the spinous processes and laminae of the ninth, tenth, and eleventh vertebrae. These were removed with bone forceps, when a large mass of granulation tissues, resembling in appearance and structure tubercular synovial membrane, protruded. This contained in its centre about eighty minims of purulent material. The whole of the growth was removed, together with a small process which extended forward to the right of the dura matral sheath.

The mass could be scraped off the dura mater, which was quite intact and healthy.

The legs began to feel different on the next day, and on the third day he was able to move the left leg slightly. He continued to gain power in both legs with rapidity, sensation apparently improving in the same proportion. The reflexes became less exaggerated. One month after the operation he had lost the exaggerated reflexes, he had completely recovered sensation in the lower part of the trunk and in his legs, and could move his legs freely and with force. Recovery has been most complete.

Hagyard: Notes on One Hundred Cases of Osteotomy. (*The Lancet*, June 14, 1890.)

The writer puts on record in this paper a few facts connected with one hundred consecutive cases of osteotomy.

The deformity in nearly every case has resulted from rickets. The age of the cases operated on varied between nine months and forty-one years.

There was not a case of septicæmia and not a single fatal result.

Chloroform was used for children and ether for those above twelve years.

The one hundred cases were made up of thirty-two bow-legs, treated by simple transverse incision; ten cases of extreme angular curvature of tibia, treated by removing a wedge-shaped piece; forty-five cases of double genua-valga, and nine cases of single genua-valga, treated by Reeve's diaphysical incision; two cases of badly united fractures of thigh; another case requiring four and another six compound fractures.

Pediatric Aphorisms.

LOWERED temperature is found in anæmia, profuse hemorrhage, collapse, death agony, and sclerema neonatorum, hydrocephaloid, and in children prematurely born. In early infancy there is no absolute relation between organic lesions and the height of temperature observed, for high fever, great restlessness, and even convulsions, may disappear quickly, and leave absolutely no lesions behind.—HATFIELD.

A temperature above 100° (37.8° – 38° C.) during the first four days of life is pathological. The same is true of rise of temperature during sleep.—HATFIELD.

The morning and evening differences in temperature in the fevers of children are, as a rule, greater than in the adult.—HATFIELD.

High febrile heat with sudden chilling of the extremities is one of the frequent phenomena of fever in very young children.—HATFIELD.

Protuberance of the fontanelle indicates hyperæmia of the brain, or exudation into the same, most marked in hydrocephalus. Depression of the fontanelle implies cerebral anæmia, and is found in hydrocephaloid, general atrophy, or the collapse of cholera morbus and Asiatic cholera.—HATFIELD.

All prenatal diseases, both hereditary and congenital, must be due to either maternal, paternal, or climatic causes, perhaps all combined.—HATFIELD.

A child nursed for only a few months makes a better fight for life than one entirely bottle-fed, which latter rarely survives more than three months, if fed on city milk.—HATFIELD.

Any mother who refuses to try and nurse her child during the first two months of its life ought to be held with the doctor as particeps criminis in case of its death.—HATFIELD.

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THERAPEUTICS OF INFANCY AND CHILDHOOD.

BY A. JACOBI, M.D.,

Late President of the New York Academy of Medicine, Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons, New York, etc.

(Continued from February number.)

VIII.—DISEASES OF THE RESPIRATORY ORGANS.

Acute nasal catarrh (acute catarrhal rhinitis) is found either as a sporadic or epidemic ailment; the latter is rarely depending on erysipelas, still less frequently on gonorrhœa, more frequently in influenza, measles, or whooping-cough. The sporadic form is sometimes local and unilateral; in that case it has a local cause, such as a traumatic lesion, a foreign body; when bilateral and general, it is mostly the result of sudden thermometric or barometric changes, or exposure. Now and then the irritation of trifacial branches of the maxillæ will, when dentition is abnormal or unusually difficult, give rise to vaso-motor and secretory changes of the nasal mucous membrane, which is supplied with ramifications of the same nerve. Acute nasal catarrh may be attended with high temperatures, considerable swelling, and obstruction (thus rendering respiration extremely difficult, particularly when the patient is newly born or quite young), and secondary affections, such as swelling of the cervical lymph-bodies, acute pharyngitis, amygdalitis, and otitis. The indications for

treatment are various: the local hyperæmia and swelling is to be reduced, the secretion to be removed, fever to be relieved; and secondary affections either to be prevented or treated.

Hyperæmia and swelling may prove dangerous to very young babies. In them the nasal cavities are narrow, and so easily obstructed by an acute catarrh that now and then a newly-born infant that has not yet learned how to breathe through the mouth is in danger of suffocating. Some of the cases acquire constant attention; day and night the mouth must be kept open by gentle pressure on the chin to enable the little patient to breathe through the mouth until the nares become viable. Particularly in cases where the mucous membrane is thickened from birth, or a nasal polypus is present, or a swelling of the pharyngeal or the palatine tonsils, the danger of suffocation is great. In a single case have I been compelled to apply the galvano-cautery to the left nasal cavity of a newly-born whose acute catarrh obstructed the narrow channel. Astringent solutions are indicated for a similar purpose, or ointments which may be applied by means of a camel's-hair brush. Still, I cannot express much satisfaction at the effects obtained. Better is a two-per-cent. solution of hydrochlorate of cocaine, which may be applied with a brush, or by means of the atomizer, from time to time. Camphor inhalations have been praised. The secretion must be removed now and then by wiping out the nose and bringing on sneezing. The wiping out may be done with a probe covered with absorbent cotton, the latter to be introduced dry, or moistened with an alum or cocaine solution. The passage may also be kept viable by a physiological salt solution (1-130), or an astringent, or disinfectant wash of alum, sulphate of zinc, subnitrate of bismuth, and boracic acid. The latter is not always satisfactory. In most cases, it is true, it acts very mildly, but I have seen catarrhal secretions increased by it. These applications may be made in different ways. An atomizer, the nozzle of which is covered with a small piece of india-rubber tubing, will do no harm; injections, unless made very gently, are liable to injure the ear; irrigation by merely emptying a pipette or a small spoonful of a solution into the nostril will prove satisfactory. Otherwise the

rational general treatment of a catarrh may be resorted to: moderate temperature of the room (68° – 74° F.), moist air when the secretion is thick and viscid, or scanty, an occasional warm bath, a dose of quinia about noon if there be a considerable rise in the afternoon, an occasional dose of phenacetin or antipyrin during the day, or small doses of the tincture of aconite in intervals of two hours; probably a single dose of opium as a sedative and diaphoretic, late in the evening.

Chronic nasal catarrh derives its therapeutical indications from its many occasional causes; for instance, frequent returns of acute catarrh, dusty, cold, and moist air, the pressure of a foreign body, or the deviation of the septum. This condition may be congenital, even hereditary, or due to a fracture of the septum, or to its dislocation from the ethmoid, or vomer, or superior maxilla. It results in obstruction, and behind it in accumulation of mucus which disintegrates and irritates. Other causes of chronic nasal catarrh are enlarged tonsils, chronic pharyngeal catarrh, and adenoid vegetations, with their influence on respiration, digestion, the sense of smell and taste, and intellectual development. Scrofula, tuberculosis, and syphilis, with their effects on mucous membranes, bones, and cartilages are frequent causes of chronic nasal catarrh. Less frequent are the effects of furunculosis, which is rarer than in the adult; of croupous inflammation; of diphtheria of the nose, which may be met with independently of pharyngeal diphtheria or ushering it in; or of eczema of the upper lip.

Syphilis, tuberculosis, and scrofula have their own indications. Thus a chronic rhinitis occasioned by these demands mercury, arsenic, creasote, cod-liver oil, iron, phosphorus according to general rules. Abscesses are to be opened, the small furuncles incised, necrotic bones removed. Foreign bodies must be extracted, adenoid vegetations removed, and hypertrophied tonsils resected, or—in occasional cases—treated with the galvano-cautery. Many a case of chronic nasal catarrh will be relieved, or nearly cured, by these measures, or, on the other hand, there is many a case of chronic pharyngitis which gets well through the treatment of the nasal catarrh. Indeed, there are very many of these complications in which the determination of the primary seat of the affection is very

difficult, or even impossible. If there be a considerable deviation of the septum, not to speak of the excessively rare cases of bony union, it must be corrected. In very young infants that correction can be accomplished by manual pressure. The cleansing of the nasal cavities is of at least as much importance as in acute catarrh. They must be washed out from two to four times a day with some warm fluid. According to the case, this may be salt water, or a solution of boracic acid (2 to 4 per cent.), or alum ($\frac{1}{2}$ per cent.), or acetico-tartrate of aluminium (1 per cent.). The same precautions must be used which were advised above. If larger quantities of the fluid be used the injection must be made very gently, and the child taught to keep its mouth comfortably open. Chlorate of potassium has been used in solutions of from one to three, resorcin, of two per cent.; creasote has been applied similarly; iodine or tannin, in combination with glycerin. Cocaine solutions have been used with good results. Its immediate result is evident, and it is better than a merely temporary makeshift. What I have seen to do a great deal of good is nitrate of silver. A solution of from one-fourth of a grain to two grains in an ounce of distilled water may be sprayed into the nasal cavity once a day, or every other day. When a carious bone is underlying the chronic catarrh, an iodoform ointment (1 : 8 or 15 vaseline) may be applied several times a day, to advantage. Hypertrophy of the mucous membrane and submucous tissue, with ulcerations or granulations, add greatly to the difficulties of the case. Lactic acid in powder or strong solutions has the reputation of destroying morbid tissues, mainly granulations, and of leaving the healthy tissue intact. Still, I cannot say that it has rendered me very appreciable service in cases I considered adapted to its alleged powers. The exuberant tissue will, however, be beneficially influenced by an application, every few days, of a solution of iodine (1 : 8 or 1 : 4), of iodol or aristol, of subnitrate of bismuth, of a strong solution (90 per cent.) of carbolic acid every four or five days, of chromic acid once every week or ten days, and last and best, of the galvano-cautery under cocaine anaesthesia. For the purpose of compressing the swelled soft tissues and correcting a deviation bougies are also used, made with

zinc, tannin, or carbolic acid. I must admit that chromic acid and the galvano-cautery are my choices in the worst classes of cases. Even many cases of ozæna are doing well under their influence. Others require the frequent use of stronger solutions of nitrate of silver as a spray, or hypermanganate of potassium solutions, or acetico-tartrate of aluminium in one to three per cent. solutions, or iodol or aristol insufflations, or a combination of a few of these remedies.

Polypi, either congenital or acquired through chronic catarrh, though not frequent, will be met with in every medical practice. They are either soft and consist of mucous membrane, or harder and are composed of a dense connective tissue. Those with an admixture of sarcomatous tissue (not often round cells, more frequently spindle-shaped cells with copious stroma) are relatively rare. The cold or galvano-caustic snare is required by those which have a rather bulky pedicle. Evulsion with a common polypus forceps suffices for those which are distinctly pedunculated, and for such as consist in the main of mucous membrane. A firm tampon is seldom required by excessive hemorrhage after evulsion. In most cases the bleeding ceases spontaneously; or a tampon of moderate size covered with powdered alum or tannin is demanded; or the cauterization of the stump with chromic acid, either dry or in concentrated solution, by means of a camel's-hair brush or a probe covered with absorbent cotton. This application may be repeated after a while to guard against a return.

Foreign bodies are often found in the nasal cavities of babies and children. Paper-balls, shoe-buttons, dry peas and beans, flies and bugs, cherry-stones, and beads are readily admitted. Their diagnosis is by no means always easy. Chronic catarrh, being their usual results, gives rise to the mistaken diagnosis of caries, syphilis, or tumor. The cases in which the presence of a foreign body caused delirium and convulsion, and could be taken for meningitis, are fortunately rare. In many, chloroform anæsthesia is required to ascertain the nature of the difficulty. The consecutive catarrh and ulceration require mild or disinfectant washes or injections; pincers, or the ear-spoon, or Daviel's spoon will generally suffice to dislodge the

foreign body. When the symptoms are urgent (convulsions, high fever), an *ala nasi* has been incised to facilitate the required extraction.

Epistaxis depends on the rupture of one or more blood-vessels, either large or small, normal or abnormal. A normal blood-vessel may bleed in consequence of a traumatic injury, or of an erosion by chronic catarrh, ulceration, diphtheria, or syphilis. Bleeding from the nose may point to the presence of a polypus, or be the indication of obstruction in distant parts of the circulation in the abdomen, the lungs (chronic pneumonia, emphysema), the thyroid body, or by cardiac disease. The compression of the abdominal viscera by enforced confinement in the school-room, over-heated and ill-ventilated at that, and consecutive constipation are a frequent cause of epistaxis. Blood-vessel walls become abnormally fragile in constitutional and infectious diseases, such as early chlorosis, tuberculosis, hæmatophilia, leucocythæmia, general amyloid degeneration; in purpura, scurvy, and typhoid fevers. Perhaps the most obstinate form of epistaxis, which is fortunately infrequent, is that which depends on the congenital incompetency of the heart combined with smallness of the large arteries, and results in the most serious cases of chlorosis. All these different causes of epistaxis suggest their own indications. The constitutional diseases resulting in local hemorrhage demand such management as has been indicated in other essays of this series. All of them may require local treatment. It is obvious that in every case of epistaxis the congestion to the nasal mucous membrane must be diminished if possible, and that the formation of a clot must be facilitated. By raising the arms over the head, and forced inspiration, the chest is expanded and a large amount of blood accommodated in it; hot hand- and foot-baths have been resorted to for a similar purpose. Ice may be applied to neck and throat, pieces of ice introduced into the bleeding nostril. The local use of water (injection, washing) is not desirable, inasmuch as it is liable to prevent the coagulation of the blood on the bleeding surface. Solutions of alum or tannin will answer better. The use of a tampon is often required to stop the loss of blood. The introduction of a wick of absorbent cotton,

or lint, by means of a pair of fine pincers, or, better, by loosely wrapping it round a smooth probe (whalebone or other), or of the same covered with alum or tannin, or soaked with perchloride or subsulphate of iron ("hæmostatic cotton"), will sometimes prove satisfactory. In but a few will it be found necessary to close the whole cavity from either side, by means of a tampon introduced through the mouth into the posterior nares, at the same time obstructing the nose anteriorly. This procedure is not so annoying and irksome as it appears to be, because in but a few cases nose-bleeding is bilateral.

Chronic catarrh and ulceration of the nares must be treated according to the principles taught above, and the most frequent causes of epistaxis among children attended to according to their own indications. I cannot impress too much the necessity of attending to the intestinal congestions and disorders of school-children. Constipation of a lifetime is often the result of the cramped position on an improper chair or bench, and of the inability to evacuate the bowels at the proper time. Children suffering from constipation, particularly those who are affected with what I have described as congenital constipation, may require this daily injection and may be benefited by an occasional (vegetable) purgative. This is sometimes all that is required to relieve their epistaxis. That many are relieved only when taken from school and allowed the free use of their limbs in open air is self-evident. Another large class of nose-bleeders is that which originally suffered from chronic pneumonia or chronic heart-disease with general and persistent anæmia. Very many of these cases improve instantly under the sufficient use of digitalis and iron.

Acute laryngeal catarrh, acute laryngitis, is too common a disease to justify on these pages a discussion of its etiology or diagnosis. In regard to the latter, I refer to a single point only, —viz., that of the temperature, which is always elevated. An *uncomplicated* acute laryngeal catarrh is always attended with fever, while an *uncomplicated* laryngeal diphtheria ("pseudo-membranous croup") is not so accompanied. Dozens of years ago I brought out this fact, and a large experience has since convinced me of its reality. The other symptoms are unmis-

takable, from the different degrees of dyspnoea to those of hoarseness or aphonia. The treatment requires the most perfect possible rest. Talking must be prohibited, crying avoided if feasible. For that reason, if for no other, opiates are indicated; partly to relieve the local irritation which produces cough, and partly to secure sleep for the purpose of equalizing circulation and resting the excited muscles. The temperature of the room ought to be equable, from 68° to 75° F., the air moist. The latter eases the large windpipes and procures recreation, while dry and cold air increases metamorphosis. Whatever beverages are given must be warm. A general warm bath, warm applications (hot water, poultices, cold applications which are permitted to become warm) are both pleasant and beneficial. Plenty of water ought to be furnished, mild alkaline mineral water by preference. An infusion of ipecac with bicarbonate of sodium, in small and frequent doses, will aid in liquefying a viscid mucous secretion.

The worst form of the acute catarrh of the larynx gives rise to attacks of dyspnoea ("croup"), which occurs quite frequently in the night after the children have been asleep for some hours. The drying up of the pharyngeal mucus is very apt to give rise to both cough and dyspnoea, and therefore it is a good plan to wake the patient from time to time sufficiently to make him drink. Average moisture of the air may not be enough. Water ought to be kept boiling constantly, so as to fill the air of the room (or a tent, which ought to be spacious) with steam. Spraying the throat with cold water is useless compared with the effect of warm vapors. That leeches, which I used sometimes in bad cases of feverish and croupous catarrh, thirty years ago, ever resulted in any good I am not prepared to say. But a promptly administered emetic (ipecac, sulphate of zinc or copper, turpeth mineral, apomorphia) has often relieved the spasmodic dyspnoea accompanying these (mostly nocturnal) attacks of pseudo-croup. The effect of emetics, however, and their indispensability have often been exaggerated. Mostly, they are less required for the relief of the babies than they tranquilize the fears of the mother and allow the family physician to stay in bed.

Chronic laryngeal catarrh may develop out of a protracted

acute catarrh, or the affection may be primarily mild, but result at an early time in thickening of tissue. Even at the earliest age this process may be observed. One such case I saw with Dr. Hopkins, of Brooklyn, in a newly-born baby, which got well after the protracted daily administration of a few grains of iodide of potassium, after several months only. Constant warm applications, or cold ones which are permitted to become warm, will favor absorption. Those which are complicated with, or perhaps dependent upon, a chronic laryngeal catarrh are often favorably influenced by the use of tincture of *pimpinella saxifraga*, half a drachm or a drachm of which may be taken daily, in ten or twelve doses, in a solution of chlorate of potassium, in such a way that the dose of the latter be a cautious one, and the dilution in water of the tincture be not excessive. This drug has long been "obsolete," but deserves to be reappointed to its former place in practice. The majority of such cases will do well when being treated with solutions of bicarbonate of sodium or iodide of potassium.

Diphtheritic laryngitis, pseudo-membranous croup.—It is not necessary to discuss here pathological questions, or to reassert the histological identity of diphtheria and "croup." When pharyngeal diphtheria has reached the larynx in its descent, or bronchial diphtheria resulted in its ascent in sudden laryngeal stenosis, the usual antidiphtheritic treatment avails but little. That neither general nor local depletion has any effect, except that of hopelessly reducing the patient's strength, has long been recognized; also, that vesicatories add a new diphtheritic membrane on the surface to those on the mucous membranes. Emetics are of no use unless a peculiar flapping sound betrays the presence of half-detached membrane in the air-passages. In such a case they are apt to save life. At all events, I have never been so fortunate as to observe the universally beneficent effect attributed to their frequent administration in an average case. Massage of the larynx has been recommended by Bela Weiss. I cannot say that the few cases in which I advised the procedure were successful; it may be that the constant repetition of the advice to use mercurial or other ointments over the

larynx is based on the observation of an occasional good effect of the friction ("massage") attending their employment. Locally, lactic acid, in more or less saturated solution, has been eulogized as a solvent of the membranes in the larynx, when often applied either by brush or spray. Most of the cases in which I have seen it used were not successful, but this untoward result is, unfortunately, not exceptional. I have seen, or believe I have seen, papayotin (1) to dissolve membrane when applied in a mixture of glycerin and water (ââ 2). Particularly would that occur in pharyngeal diphtheria slowly descending. Lime-water is still used as a spray and has its admirers. Lime slaked in a small room, or under a tent, is decidedly more effective, for during that process a large quantity of lime is carried up and is inhaled; at the same time the softening and solvent effect of the steam is obtained. The latter is not always as beneficent as it appears. In many the application, externally, of cold water to the neck or ice-bags are vastly preferable. But in most cases of anæmic and highly nervous children the latter are not tolerated. Constant inhalations of turpentine, or carbolic acid, from a kettle containing boiling water have impressed me as beneficial in a large number of cases. In the foundling asylum (service of Dr. Reid and Dr. O'Dwyer, Dr. Clark, house physician) I have observed a good effect in a few simultaneous cases of the inhalations, by heat, of calomel.

The patient remains in bed as much as possible, and may continue such expectorants as he perhaps took for previous catarrhal symptoms; may also take diaphoretics, warm beverages; an occasional opiate for that indication and to procure some rest. The continuation of chlorate of potassium, when the invasion of the larynx is complete, is rather superfluous. Antipyretics are out of the question unless there is a very high temperature depending on a complication (general diphtheria, pulmonary inflammations). Pilocarpine injures by debilitating the patient; the cases which are really benefited by it are excessively rare. Mercurials have resulted in more actual recoveries than any other internal treatment. The cyanide and iodide have been recommended. For ten years I have employed the bichloride in doses of a milligramme

($\frac{1}{60}$ grain) or more once every hour. The smallest babies take one-fourth or one-third of a grain daily for days in succession easily. Almost never will a stomatitis follow, and no gastric or intestinal irritation, provided the dilution be in the proportion of at least one in eight thousand. An occasional slight diarrhœa may require the addition of a few drops of paregoric. I can repeat a former statement, that never have I seen cases of croup getting well in such numbers, either without or with tracheotomy or intubation, as with mercurial treatment. When this treatment proves unsuccessful, intubation or tracheotomy must be resorted to. A small, frequent, and intermittent pulse, aphonia, cyanosis, and marked retraction, with every inspiration, of the supra-clavicular fossæ and the epigastrium, are the indications for the operative procedure. I shall not here be tempted to defend the two operations; I shall not even be tempted to discuss the criminality of allowing a child to suffocate without resorting to mechanical relief; or to compare the two operations with each other. I can only say that for years I have not seen a case in which intubation would not take the place of tracheotomy, and have therefore not performed the latter. Intubation has come to stay; it is not one of the many temporary devices which have been brought out to be instantly forgotten. In most cases it takes the place of tracheotomy; in none does it make it impossible when required in the opinion of the operator. The latter operation may be preferred or become necessary for the purpose of getting at the trachea and bronchi for the mechanical removal of membrane and other local treatment, rare though the cases be in which such procedures are attended with success.

HERNIA IN INFANCY, AND ITS TREATMENT.

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ONE-HALF of all abdominal hernias occur during the first five years of life, and therefore come within the consideration of this article. It may also be said that as regards treatment they form the most important, but by no means the most difficult, branch of the subject.

Important, because it is during this period that it must, as a rule, be decided whether the child shall be condemned to a life-long hernia or have it cured. Not difficult, because nature is on the side of cure, and there is freedom from many complications which arise later in life.

Unfortunately, however, it is a fact that children throughout the country are growing up to manhood and womanhood carrying with them the hernias of infancy because of lack of proper attention on the part of the family physician. The case has been brought to him, and he has "prescribed" a truss, and recommended a druggist or instrument-maker who deals in those articles. Having done this he feels that he has discharged his whole duty to the patient, and gives the case no further thought. The dealer sells to the parent whatever truss he happens to be interested in, or have in stock, the case itself having little or no influence in deciding what form of appliance is to be worn; nor in the majority of instances is the instrument selected ever shaped or moulded to the form of the unfortunate infant who is to wear it. In fact, the baby is fitted to the truss and not the truss to the baby.

The sale of the truss having been made, no one but the parents have any further responsibility in the case, and this rests lightly with them in the ignorant faith that just the right thing has been done. If, by the merest chance, the truss was approximatively correct at the time applied, this does not hold true a few weeks later, as the child is rapidly changing in shape and size. The parents know nothing of the necessity of frequent refitting of the truss, the dealer's interest and

responsibility terminated with the sale, the doctor is out of the case altogether by having sent to the dealer, and the result is that the child goes without cure.

This is all wrong, and the wrong begins with the family physician who first sees the case, and passes it into unprofessional hands. He should become at once as responsible for its cure as he would for a fractured femur or a dislocated hip-joint. If he cannot bring to bear upon it better knowledge than his own, then it is his absolute duty to do the best he can by it himself.

In a few of the larger cities, some truss-makers have, by practice, acquired considerable skill in fitting, and when they have taken the trouble to familiarize themselves with the anatomy of the parts, and have no special hobby or patent of their own to develop, are fairly safe; but the physician already possessing the knowledge of anatomy and diagnosis will soon obtain by experience such mechanical skill as is necessary, and carry out the treatment in a far more scientific manner than possible for an unprofessional man. He would also find that not only would the parents fully appreciate his efforts in behalf of their child, but that by the cures which he would surely obtain his reputation would be materially added to.

It is the intent and scope of this paper to give to the general practitioner a few hints that may aid him in the diagnosis and treatment of this class of cases.

Before entering into the consideration of the practical part of the subject it is not only desirable, but essential to its correct understanding, that we should recall some anatomical points which have direct bearing upon the causation, development, and treatment of hernia as we find it in the infant.

The writer believes that some irregularity in the descent of the testicle is one of the most important and frequent predisposing causes of hernia in early life. It will be remembered that the testicle is primarily formed just below the kidney and behind the peritoneum, from this point it migrates to its natural abiding-place in the scrotum. This transition should be completed by the end of the ninth month of intra-uterine life, but owing to adhesions within the abdomen, shortness of the cord, or from reasons which cannot be dis-

covered, it may not come down until after birth, sometimes even not until quite late in life. They may lodge and become stationary at any point in the canal, or after passing the external abdominal ring, assume the appearance of a small hernia and be reducible through the canal into the abdomen.

The testicle is preceded in its passage through the canal by a fold or pouch of peritoneum which covers its anterior surface after descent has taken place, and it is between these two layers of the tunica vaginalis that hydrocele occurs. The neck of this pouch which passes through the canal and communicates with the peritoneal cavity is eventually obliterated, leaving that part in front of the testicle a shut sac, the cavity of the tunica vaginalis. Its neck is closed off from the abdominal cavity by a process of obliteration at three points, first at the internal ring, second at the external ring, and third just above the testicle. Delays in the completion of these formative processes lead to the causation of many hernias, and; as will be shown later on, to making diagnosis obscure in many others; for, while the non-closure of the neck of this pouch results in congenital hernia so frequent in infancy, we may have, on the other hand, hydrocele either of its larger cavity or between any two points of closure. This hydrocele may be shut into the space where it forms, simulating irreducible hernia; or it may be reducible to the cavity of the abdomen through a small communicating opening, simulating reducible hernia.

In the female the formation and migration of the ovary is identical with that of the testicle in the male up to the point when the latter leaves the abdomen; the similarity goes still further, by the passage of a pouch of peritoneum down the inguinal canal of the female, forming the canal of Nuck, thus rendering liable, in a less degree, complications of hydrocele, and the occurrence of congenital hernia in the female.

Congenital hernia, therefore, refers to a protrusion of the viscera into this cavity of the tunica vaginalis (or canal of Nuck), and may take place late in life, although commonly it does not occur after the fifth year of age. I am led to speak of this point particularly as I have found that many of the medical gentlemen attending my classes are under the impres-

sion that this form of hernia must necessarily be present at birth, while on the contrary it is very seldom so.

In infants we rarely meet with more than three varieties of abdominal hernia, and those are found in the order named,—viz., inguinal, umbilical, and ventral.

It is well to bear in mind the fact that femoral hernia is never found in infancy. Kingdon stated, some years since, that in many thousand cases he had seen it only once in a girl as young as eleven years of age. I have under care a boy of eight years, and so far as I know there is no similar case on record.

Pathologically we could divide inguinal hernia into several varieties, but for practical purposes this is neither necessary nor advisable. It is, however, important to distinguish between the congenital form, coming down within the tunica vaginalis, and acquired hernia, which comes down with a true hernial sac formed of peritoneum which it carries before it in its passage through the muscular wall of the abdomen.

This discrimination is important, for the reason that in congenital hernia we know that it will take a longer time to produce a cure, by mechanical means at least, and that there are complications liable to arise during treatment, to be spoken of later, which it is desirable to recognize at once.

In acquired hernia its formation is usually slow, beginning with a bulging over the upper part of the canal, which gradually descends along the cord into the scrotum, and when the hernia is protruding the outlines between the testicle and tumor can be readily made out. Ordinarily the case is seen before a very large protrusion has taken place. The history is of gradual increase of size from above downward. The sac seldom, except, possibly, in old and neglected cases, reaches the top of the testicle.

On the contrary, the formation of a congenital hernia is usually rapid, and after it passes through the internal ring it drops at once to the bottom of the scrotum; the anterior surface of the testicle is covered by the protruding bowel, and the dividing line between the two is difficult to find. In fact, in many cases the location of the testicle cannot be made out until the hernia has been reduced. The most important diag-

nostic point, however, and one that I do not remember having seen mentioned by other writers upon the subject, is the thickening of the cord which extends down to and is connected with the testicle. I have repeatedly called attention to this point in my clinic, as when once fixed in mind it will give, not an infallible, but a very reliable guide to the diagnosis of congenital hernia.

The contents of the hernial sac is, in infancy, almost invariably intestine. According to Lockwood, who has made careful research upon this subject, the mesenteries of children are proportionately longer than in the adult, allowing the intestines to lie in contact with the anterior abdominal wall, or glide through any opening in its structure that happens to exist. It is quite certain that omentum, so commonly present in the hernia of adults, is very seldom a part of the protruding mass in infancy.

For the purposes of this paper it is unnecessary to enter into the consideration of the various portions of bowel that may be present. This is a matter of pathological interest, but it has little bearing upon the treatment of the case.

I find that many medical men have the impression that inguinal hernia in the infant is confined to the male, but this is far from the fact. At least one-tenth of the inguinal hernias occurring in children under five years of age are in the female, the umbilical variety being about equally divided. Treatment results more promptly in cure in the female, from the fact that the canal has not been distended by the transit of the testicle. In those cases analogous to congenital hernia in the male, when the protrusion has taken place into the canal of Nuck, occurring as a complication in their treatment, we may have a hydrocele, either reducible or developing after all communication with the abdomen has been shut off. The existence of this condition in the female infant I have more than once demonstrated before my class by drawing off the fluid which occupied the exact site of a former hernia. If the fact that this may take place is not kept in mind error in diagnosis is very sure to result, and forcible attempts to replace what appears to be an irreducible hernia are liable to be made. The cause of hernia should be carefully sought for, and can be

more frequently found in the infant than in the adult, and may in many instances be removed, thereby insuring prompt cure of what would otherwise prove an obstinate case. As predisposing causes we have the patulous tunica vaginalis, already spoken of, hereditary tendency, and defective structure of the anterior muscular wall of the abdomen. The first named is a common cause, but of inheritance there is some doubt as to its being an important factor. I have seen many striking examples, but, as it does not prevent their being cured, it has little practical bearing upon the subject.

Ventral hernia, which most commonly present along the edge of the recti muscles, usually result from defective structure of the parts, and form particularly obstinate cases to cure.

Among the immediate causes of inguinal and umbilical hernia in the infant none, within my experience, is more common than constipation. I am almost daily meeting with cases where, from the straining of an infant to relieve its bowel of hardened fæcal matter, the delicate structures about the canal are stretched and a hernia is produced. Unless this cause is discovered and removed, a cure will not be likely to result, even though careful treatment is carried out. It is my habit to keep well informed in this particular respecting children under my care. Long-continued crying is another common cause of hernia; and third on the list I should name tight belly-bands. It is a very common impression among women that the baby must have its belly-band kept very close; this throws the abdominal contents to the pelvis and places the lower abdominal wall upon a very unnatural strain. If any physician will watch the bulging of these parts in a crying child who has on a tight bandage, he will need no further argument to convince him of the damage that is very likely to result. Whooping-cough is another very common cause, and a very disagreeable complication in cases under treatment.

There has been considerable said and written respecting phimosis as a cause of hernia in infancy, and some writers would have us believe that it was one of the most important factors in its occurrence, but, after ten years of close observation of this particular point, I am convinced that it is comparatively of little importance. I recently had an opportunity

of showing a case where it was unquestionably the cause of hernia. The opening was scarcely larger than a pin-hole, and every time the child urinated the foreskin became enormously distended, and the child crying with pain would strain to relieve itself. Here certainly was a case demanding circumcision, and could not be expected to do well until this operation had been performed.

It has been shown that Hebrews are liable to hernia in just as large a proportion as any other class of people, and my own experience bears this out. If a child has phimosis to the extent of obstructing its free urination circumcision should be done, but short of this it is not a necessity on account of existing hernia, even though advisable for other reasons.

The diagnosis of hernia in infancy is ordinarily easily made, but there are a few conditions simulating a hernial protrusion, which it will be well to consider in order to avoid mistake.

Hydrocele of the tunica vaginalis should be readily recognized by the fact that it is irreducible, that it is elastic, smooth in surface, and translucent; but, above all, that its neck, or what would be the neck of a hernial tumor where it enters the abdomen at the external ring, is small; that in formation it has been slow and began at the bottom of the scrotum; not at the external ring as in hernia. This condition can only be confounded with strangulated or irreducible hernia, and I shall attempt to show later on that we very seldom meet with either of these at this early age.

If we have a congenital hydrocele then we have something much more difficult to distinguish from hernia. Here we have a tumor in the scrotum which is readily reduced to the abdomen with the patient in the recumbent position, and which will again descend shortly after the upright position is resumed. There are two diagnostic points which should be our guide in connection with this condition: First, the lack of swelling at the external abdominal ring; and, second, it will be found that if the swelling is reduced, the finger being held over the canal with the patient upright, the tumor will gradually reappear in the scrotum, and nothing will have been felt to pass the finger, as would be the case if the bowel slipped by.

It is essential to the reputation of the attending physician that this condition be recognized when present, as if he attempts to treat it as a hernia he is sure to fail, but if he explains to the parents that it is fluid and cannot be retained within the abdomen by any truss they will feel perfectly satisfied.

We meet with two conditions of the testicle which make diagnosis obscure and lead to many mistakes in treatment by those who have not had a large experience with the cases under consideration. I refer first, to a testicle delayed in its descent and which may be lodged in the canal or just outside of the external ring, and appears to be reducible to the abdominal cavity. It has been no uncommon experience with me to find a child with a testicle kept back in the canal by a truss that had been applied for a supposed hernia, and I am frequently meeting with men who have, during their whole lives, worn trusses over these delayed testicles. True, hernia commonly coexists with this condition, and if the organ can be brought out of the canal a truss should always be applied so that the internal ring is protected, and protrusion into the canal prevented, while the testicle is allowed to continue its descent into the scrotum. In every case, the examiner should assure himself of the presence of both testicles in the scrotum; if one should be absent support should not be applied until it has come through the canal, even though a small hernia is present.

The other condition referred to is what I have termed retraction of the testicle. A testicle—sometimes both—which has reached its normal place will be drawn up against the external abdominal ring so forcibly as to cause extreme pain. After the attack passes over, lasting from ten minutes to half an hour, the testicles drop back into proper position. Usually in these cases the testicle is not reducible to the canal, but it forms a small tumor at its external entrance which I have known to be mistaken for hernia. As I shall not mention these cases again, I will say here that the presence of a soft truss pad over the cord at the external ring has never failed, in my experience, to afford relief, but I have seen after a year's use in one case the trouble promptly return when the truss was removed.

Hæmatocele is usually so easily distinguished from hernia, and the history of traumatism is so clear, that it is hardly worthy of mention. I have seen one case, however, which had the appearance of an incarcerated hernia, and, as it occupied the site of a hernia which had previously existed, it had been mistaken for a sudden return of that protrusion. Here again the smallness of the neck of the tumor at the external ring, combined with a history of a blow in this region, made the diagnosis conclusive.

In discussing hernia of early life, it is important that we should have a clear understanding of irreducible, incarcerated, and strangulated hernia. The first of these I have never seen in children whose ages bring them within the consideration of this paper. I have seen accounts of operations upon infants for irreducible hernia, but must confess my doubts as to their belonging to this classification.

I have recently read of an operation upon a child three weeks old for "irreducible congenital hernia" in which the statements are made that the child had worn a truss, "but it was found impossible to continue its use owing to the pain it gave," and "in this case no truss could have effected a cure, inasmuch as the sac was adherent to the cord;" here are contained some very unreasonable statements; attempts to justify what appears to the writer an unjustifiable operation.

Irreducible congenital hernia in a child of that age is highly improbable, but allowing this, that a truss should have been applied over this irreducible hernia is far more surprising than that it should have produced intolerable pain. Again, the statement that the case was incurable by a truss because the sac was adherent to the cord, is incorrect. The sac is almost uniformly so in congenital hernia, and still those cases are readily cured in children so young. The fact that a hernia is congenital is not evidence that it cannot be cured by mechanical support. It only indicates that support will have to be maintained for a longer period while nature completes the cure.

Incarceration—i.e., temporary inability to reduce the hernia without symptoms of intestinal obstruction, and apparently without pain—has been repeatedly within my experience. It

has been no uncommon thing to have a child brought whose hernia had been for a time retained by the truss, but, now having come down, it could not be replaced by the parents, and perhaps not by myself, without using more force than judicious. I have found that these cases need cause no uneasiness, so long as urgent symptoms are not present, usually after the child sleeps, or during sleep, the mother can by gentle pressure reduce the tumor.

Strangulated hernia, with all of its accompanying symptoms of intestinal obstruction, is really a very rare occurrence in infancy,—certainly it is not beyond the limit of possibility, but I think that the cases where reduction cannot be accomplished by the aid of an anæsthetic will seldom be met with.

In the cure of hernia of infancy—and here we may safely use the word “cure”—we have two means at our command,—viz., surgical and mechanical. The practical application of these methods will be considered in the second part of this paper.

(To be continued.)

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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(Continued from February Number, page 122.)

A. THE NOSE.

DISEASES OF THE NOSE.

2. *Chronic Rhinitis.*

SYNONYME.—Chronic nasal catarrh.

DEFINITION.—A chronic inflammation of the nasal mucous membrane, arising from any cause whatever, and resulting in a permanent derangement of the normal condition of the nasal and accessory cavities, with great alterations in their various functions.

VARIETIES.—1. Simple chronic rhinitis.

2. Grave chronic rhinitis.

a. Simple chronic rhinitis.

DEFINITION.—A very common condition, consisting essentially in a chronic catarrhal inflammation of the nasal mucous membrane, altogether local in its nature and not dependent upon any systemic dyscrasia

whatever, but which, at times, may give rise to marked systemic disturbances.

VARIETIES.—1. Rhinitis hypertrophica.

2. Rhinitis atrophica.

3. Purulent rhinitis of children.

(a) Rhinitis hypertrophica.

DERIVATION.—*ὑπέρ*, over; *τροφή*, nourishment.

SYNONYMS.—

1. Chronic rhinorrhœa.

2. Rhinitis humida.

3. Fluxus nasalis.

4. Coryza phlegmatorrhagia.

5. Hypertrophic nasal catarrh.

6. Moist nasal catarrh.

7. Nasal hypertrophy.

DEFINITION.—A chronic inflammatory affection of the nasal passages usually occurring after the fifteenth year, which is characterized by an abnormal hypertrophy of the pituitary membrane with great encroachment upon the normal lumen of the nasal cavities, and which is associated with a permanent dilatation of the blood sinuses of the turbinated tissues.

VARIETIES.—1. Anterior hypertrophy.

Site. Anterior portion, lower turbinated bone, and cartilaginous septum.

2. Middle hypertrophy.

Site. Middle turbinated bone.

3. Posterior hypertrophy.

Site. Posterior extremities of middle and lower turbinated bones.

Table of Diagnostic Points between Anterior and Posterior Hypertrophies.

<i>Anterior Hypertrophy.</i>	<i>Posterior Hypertrophy.</i>
1. Usually sessile.	1. Usually have short, pedicle-like attachment.
2. Color, bright red.	2. Color, dark brownish purple, or light yellowish pink.
3. Venous sinuses not numerous nor large.	3. Venous sinuses both numerous and large.
4. Extensive inflammatory infiltration and hyperplasia of connective tissue.	4. Slight degree of inflammatory infiltration and hyperplasia of connective tissue.

ETIOLOGY.—1. *Predisposing causes.*

(1) *General.* a. Repeated acute attacks.

b. Insufficient food.

c. Impaired nutrition.

d. Neglect of the skin.

e. General cachexia.

(a) Syphilitic.

(b) Scrofulous.

f. Mental excitement.

g. Masturbation.

(2) *Local.* a. Distortion of nasal septum (*common*).

b. Catarrh of pharyngeal tonsil.

c. Obstruction of venous flow through sphenopalatine foramen (*Spicer*).

d. Nasal neoplasms.

e. Foreign bodies in nose.

f. Traumatism.

2. *Exciting causes.*

(1) Exposure to cold and draughts.

(2) Errors of clothing.

(3) Wetting of body, especially of feet.

(4) Poor ventilation of bedroom.

(5) Excessive atmospheric humidity.

(6) Constant inhalation of dust.

PATHOLOGY.—

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| 1. <i>Macroscopic.</i> | { (1) <i>Anterior Rhinoscopy.</i> | a. <i>Nasal mucous membrane</i> , congested, hypertrophied; at times excoriated; color, bright reddish gray. |
| | | b. <i>Nasal respiratory lumen</i> , diminished. |
| | c. <i>Turbinated bodies</i> , hypertrophied, congested. | |
| | { (2) <i>Posterior Rhinoscopy.</i> | a. <i>Nasal mucous membrane</i> , congested, hypertrophied; color, dark brownish purple, or light yellowish pink; consistency soft (<i>dark variety softer than light</i>). |
| b. <i>Pharyngeal tonsil</i> , prominent. | | |
| c. <i>Glands of pharyngeal vault</i> , enlarged. | | |
| d. <i>Faucial tonsils</i> enlarged | | |
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| 2. <i>Microscopic.</i> | { (1) <i>Nasal mucous membrane.</i> | a. Epithelial cells proliferated, fatty degenerated. |
| | | b. Submucous connective tissue, hyperplastic; occasionally undergoing myxomatous degeneration (<i>Seiler</i>). |
| | | c. Infiltration of small round cells in mucosa. |
| | | d. Cavernous sinuses dilated; paresis of contractile walls (<i>Jarvis</i>). |
| | | e. Gland-ducts and glands, plugged with proliferated epithelial cells. |

SYMPTOMS.—

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| 1. <i>Stage of Congestion. (Temporary obstruction.)</i> | { (1) <i>Nose.</i> | a. Respiration, occluded partially and transiently; attacks of suffocation. |
| | | b. Discharge, watery, profuse. |
| | | c. Anosmia, partial. |
| | | d. Sneezing, constant. |
| | { (2) <i>Mouth.</i> | a. Inability to nurse. |
| | | b. Voice slightly nasal. |
| { (3) <i>Pharynx.</i> | a. Sensitive. | |
| | b. Discharge, mucous, thick, glairy. | |
| | c. Hawking, frequent. | |

2. *Stage of True
Hypertrophy.
(Permanent
occlusion.)*

(1) *Local.*

- a. Nose.* (a) Respiration, oral, complete nasal stenosis.
- (β) Discharge, slimy, slight.
- (γ) Anosmia, partial or complete.
- (δ) Deformity, broadening of bridge; redness and hypertrophy of integument.
- b. Mouth.* (a) Sensation of dryness.
- (β) Breath, occasionally fetid.
- (γ) Cough, laryngeal, hacking, tickling, irritating, usually nocturnal, usually dry, but at times moist.
- (δ) Expectoration, mucous,ropy.
- (ι) Sense of taste, partially lost.
- (θ) Voice, "nasal twang."
- c. Pharynx.* (a) Sensation of dryness.
- (b) Hawking, frequent, especially in the morning.
- d. Ear.* (a) Hearing impaired.
- (β) Tinnitus aurium.
- (γ) Ootalgia.
- e. Eyes.* (a) Conjunctivæ inflamed.
- a.* Headache, frontal dull.
- b.* General health, impaired.
- c.* Expression, dull.
- d.* Surface, pale.
- e.* Mental inaptitude.
- f.* Sleep, disturbed, restless.

(2) *General.*

- SEQUELÆ.—1. *Respiratory.* (1) Catarrh of accessory nasal cavities.
 (2) Pharyngitis, catarrhal or follicular.
 (3) Laryngitis.
 (4) Tracheitis.
 (5) Bronchitis.
 (6) Bronchitic asthma.
 (7) Preternatural narrowing of thorax.
2. *Ocular.* Conjunctivitis.
3. *Aural.* (1) Deafness.
 (2) Purulent otitis.
4. *Nervous.* (1) Chorea.
 (2) Epilepsy. } *Bosworth.*

DIAGNOSIS.—1. From gelatinous polyp.

Posterior Nasal Hypertrophy.

1. Mucous membrane of a uniform deep-red or brownish color, not highly transparent nor glistening.
2. Blood-vessels not distinctly outlined, and when present usually running in a horizontal direction.
3. Nasal discharge watery and profuse at first, later slimy and small in amount.
4. Usual seat, posterior portion of lower turbinated bone.
5. Non-pedunculated.
6. Immobile.
7. Non-hygroscopic.
8. Pressure reveals a hard bony foundation, and elicits no crackling.
9. Always bilateral.
10. Application of cocaine produces a retraction of the hypertrophied membrane.
11. As a rule, inspiration is interfered with, and rarely is there complete obstruction to respiration.
12. Voice has a nasal twang.
13. Never accompanied by asthmatic attacks.

Gelatinous Polyp.

1. Mucous membrane of an irregularly distributed pale-red or pinkish color, very transparent and glistening, presenting a brilliant reflection of light.
2. Blood-vessels both prominent and enlarged, and commonly running from above downward.
3. Nasal discharge watery and profuse at first, later profuse, bright yellow, purulent.
4. Usual seat, middle meatus.
5. Usually pedunculated.
6. Mobile.
7. Intensely hygroscopic.
8. Pressure reveals a soft, fleshy body which gives a crackling sensation.
9. Usually unilateral, but frequently multiple.
10. Cocaine has no effect upon the growth.
11. Expiration is interfered with if the polyp is small, with complete obstruction to respiration if the growth is large.
12. Voice faintly nasal, with a peculiar, characteristic dead quality.
13. Frequently accompanied by asthmatic attacks in the late stage.

2. From rhinitis atrophica (*Vide*).

3. From fibrous polyp of the nose (*Vide*).

PROGNOSIS.—1. *In nurslings*, often fatal.

(1) From interference with nutrition (*Rayer*).

(2) From exhaustion (*Frank*).

(3) From development of pulmonary hyperæmia (*Kussmaul*).

2. *After infancy*, good.

TREATMENT.—1. *Local.* (1) *To soften incrustations and lubricate membrane.*

a. *Unguents, by spray or brush.*

(a) Heated vaseline.

(2) *To remove accumulations of mucus.*

a. *Detergent and antiseptic lotions by spray or douche.*

- | | |
|---|--|
| (a) Soda bicarb., gr. 1-5 to
3i glycerine. | } With trace of anti-
septic agent. |
| (b) Soda biborat., gr. 1-5 to
3i glycerine. | |
| (c) Soda benzoate, gr. 1-5
to 3i glycerine. | |
| (d) Soda phosphate, gr. 1-5
to 3i glycerine. | |
| (e) Soda chlorate, gr. 1-5
to 3i glycerine. | |
| (f) Normal salt solution 3i to Oi
water. | |
| (g) Dobell's solution. | |

(3) *To heal excoriations.*

a. *Weak astringent solutions by spray two or three times per week.*

- (a) Ferric alum, gr. 4 to 3i water.
 (b) Zinc sulphate, gr. 5-10 to 3i water.
 (c) Copper sulphate, gr. 5-10 to 3i water.
 (d) Iron sulphate, gr. 5-10 to 3i water.
 (e) Glycerite of tannin, gtt. 10 to 3i (Jarvis).
 (f) Distilled extract of witch-hazel, diluted one-half with water.
 (g) Boulton's solution.

2. *General.*

- (1) Abundance of fresh air.
 (2) Regulation of diet.
 (3) Tonics.
 (4) Nervines.

3. *Surgical.* (1) *To overcome nasal obstruction.*

a. *Reduction (least valuable).*

- (a) Cocaine (temporary in action).
 (b) Galvano-cautery.
 a. Plunge-battery.
 b. Storage cell.
 (c) Injection of ergotine.
 (d) Galvanization.
 (e) Elastic pressure.
 (f) Nasal sounds.

b. *Excision (most valuable).*

- (a) Jarvis snare or écraseur.
 a. Cold wire loop alone.
 b. Cold wire loop and transfixion needle.
 (b) Use of caustics (preceded by cocaine).
 a. Chromic acid.
 b. Monochloroacetic acid.
 γ. Nitrate of silver.
 δ. Nitric acid.
 θ. Acetic acid.

- (c) Ligature.
- (d) Instrumental (scissors, saws, electric drills, forceps, gouges, nasal burrs).
- (e) Ablation.
- (f) Disintegrating injections.

FORMULÆ.—1. Dobell's solution (compound solution of sodium borate).

R Sodii bicarb.,
Sodii borat., āā gr. xx;
Acid. carbol., gtt. vi;
Tinct. opii, ʒi;
Glycerini, ʒvi;
Aquæ destillat., q.s. ad ʒvi. M.

S.—Use in atomizer.

2. Boulton's solution.

R Tinct. iodi. comp., mxx;
Acid. carbol. (cryst.), mvi;
Glycerini, ʒvii;
Aquæ destillat., ʒv. M.

S.—Place in water-bath of 100°, in tightly-corked bottle, until solution becomes colorless; then filter. Use in atomizer.

(b) Rhinitis atrophica.

DERIVATION.—*ἀ*, not; *τροφή*, nourishment.

SYNONYMES.—

- | | |
|--------------------|---------------------------------|
| 1. Ozæna. | 5. Atrophic nasal catarrh. |
| 2. Fetid coryza. | 6. Dry nasal catarrh. |
| 3. Fetid catarrh. | 7. Rhinitis atrophica simplex. |
| 4. Rhinitis sicca. | 8. Rhinitis fetida atrophicans. |

DEFINITION.—A chronic inflammation of the nasal mucous membrane, usually occurring between the fifth and fifteenth years, which is characterized by a pronounced atrophy and anæmic condition of the pituitary membrane with occasional erosions thereof, accompanied with the formation of large brown, green, or yellowish crusts within the nasal and naso-pharyngeal cavities, which usually give rise to a peculiar and offensive odor.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Inordinate breadth of nostrils in the new-born (*Zaufal*).
- (2) Atrophy of inferior turbinated bone (*Zaufal*).

2. *Exciting causes.*

- (1) Purulent rhinitis (*Bosworth*).
- (2) Hypertrophic nasal catarrh (*Jarvis et al.*).
- (3) A non-putrefactive coccus (*Löwenberg*).

PATHOLOGY.—

- | | | | |
|-----------------|---|--------------|--|
| 1. Macroscopic. | { | (1) Nose. | a. Mucous membrane pale, dry, shining, smooth, attenuated, at times inflamed; occasional erosions on septum. |
| | | | b. Meatuses, shallow or obliterated. |
| | | | c. Nasal chambers, increased in calibre. |
| | | | d. Formation of crusts on inner nasal walls; large; color, brown, green, gray, or yellow. |
| | { | (2) Pharynx. | a. Mucous membrane, dry, glazed, parchment-like; occasionally eroded. |
| | | | b. Glandular tissue atrophied more or less; at times entirely absent. |
| | | | c. Formation of crusts on pharyngeal walls; large; color, brown, green, gray, or yellow. |

2. *Microscopic.* { (1) *Nasal mucous membrane.* a. Fatty degeneration of gland-epithelium (*Krause*).
 b. Formation of fat globules (*Krause*).
 c. Cornification of epithelium.
 d. Cirrhosis of sub-mucous cellular tissue (*J. Mackenzie*).
 e. Atrophy of glandular follicles (*Gottstein*).
 f. Disappearance of venous sinuses of turbinated tissues (*Bosworth*).

SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Respiration, obstructed (from accumulation of scabs), oral.
 b. Discharge, mucous or muco-purulent; scanty, thick, viscid, offensive, containing scabs.
 c. Fetor (due to decomposition of muco-purulent or fatty matter), musty, grave-yard (*Bosworth*); punaisie (*French*), from resemblance to odor of crushed bedbugs.
 d. Anosmia, partial or complete.
 e. Sensation of great dryness.
 f. Formation of scabs.
 g. Epistaxis (*rare*).
 (2) *Mouth.* a. Voice, usually hoarse.
 b. Cough, occasional, dry.
 c. Breath, offensive.
 (3) *Pharynx.* a. Sensation of dryness.
 b. Deglutition, slightly difficult.
 c. Hawking and hemming, constant.
 d. Formation of scabs.
 (4) *Ears.* a. Hearing, moderately impaired (*late stage*).

DURATION.—Indefinite.

SEQUELÆ.—Aural.—(1) Chronic catarrhal otitis media.

(2) Deafness.

DIAGNOSIS.—1. From rhinitis hypertrophica.

Rhinitis Atrophica.

1. Usually occurs between the ages of five and fifteen.
2. Characterized by an abnormal spaciuousness of the nasal chambers.
3. Pituitary membrane smooth and atrophied.
4. Atrophy and loss of outline of the turbinated bodies.
5. Meatuses shallow or obliterated from atrophy of the mucous membrane.
6. Attended with the formation of nasal crusts and moulds of a brownish, greenish, gray or yellowish tint.

Rhinitis Hypertrophica.

1. Usually met with after the fifteenth year.
2. Nasal chambers occluded, either partially or completely.
3. Pituitary membrane swollen and hypertrophied.
4. Hypertrophy and prominence of the turbinated bodies.
5. Meatuses deepened from hypertrophy of the mucous membrane.
6. Unattended with the formation of nasal crusts and moulds.

- | | |
|--|---|
| <p>7. Nasal discharge diminished in quantity, thick, viscid, mucous or muco-purulent, and with a pronounced fetor.</p> <p>8. Attended with marked shrinkage and disappearance of the adenoid tissue in the pharyngeal vault.</p> <p>9. Accompanied with pharyngitis sicca, and the formation of pharyngeal crusts.</p> <p>10. Prognosis bad as regards cure.</p> | <p>7. Nasal discharge profuse, watery, odorless.</p> <p>8. Attended with an hypertrophy of the adenoid tissue in the pharyngeal vault.</p> <p>9. Accompanied with pharyngitis humida, with no formation of pharyngeal crusts.</p> <p>10. Prognosis favorable as regards cure.</p> |
|--|---|

2. From specific rhinitis (*Vide*).

PROGNOSIS.—1. Favorable, in early stage.

2. Bad as regards cure, in late stage.

TREATMENT.—1. Local. (1) To remove encrustations.

Warm alkaline disinfectant lotions (*in hard rubber post-nasal syringe*).

- (a) Carbolic acid, gr. $\frac{1}{4}$ –4 to \mathfrak{Z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (b) Salicylic acid, gr. 1–4 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (c) Sodium salicyl., gr. 5–10 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (d) Zinc sulpho-carbol., gr. $\frac{1}{2}$ –2 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (e) Sod. chlorinate, $\mathfrak{z}\frac{1}{2}$ –1 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (f) Benzoic acid, gr. $\frac{1}{2}$ to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (g) Sod. benzoate, gr. 1–10 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (h) Thymol, gr. $\frac{1}{4}$ –1 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (i) Potas. permang., gr. 1–5 to \mathfrak{z} i with \mathfrak{m} 15 to \mathfrak{z} i glycerine.
- (j) Hydrarg. bichloride, 1–10,000.
- (k) Seiler's antiseptic tablets, one in \mathfrak{z} ii water (*Vide formula, acute coryza*).

(2) To prevent return of crusts and maintain cleanliness.

a. Unguents (*by cotton probe, brush, feather, or spray*).

- (a) Vaseline.
- (b) Lanoline.
- (c) Lard.
- (d) Cacao-butter.
- (e) Gelato-glycerine.
- (f) Iodoform ointment (*Goodhart and Starr*).
- (g) Potas. permang., gr. 1–5 to \mathfrak{z} i water.

b. Stimulating applications (*in Ely's powder-blower*).

- (a) Pulv. sanguinariæ, gr. 15 to \mathfrak{z} i lycopodium (*Bosworth*).

- (b) Pulv. galangæ, gr. 20 to 3i lycopodium (*Bosworth*).
- (c) Pulv. red gum (*Mackenzie*).
- (d) Pulv. white hellebore.
- (e) Pulv. belladon., gr. 6 to 3i lycopodium (*Bosworth*).
- (f) Pulv. acid. salicyl., gr. 5 to 3i lycopodium (*Bosworth*).
- (g) Pulv. potas. brom., gr. 20 to 3i lycopodium (*Bosworth*).
- (h) Pulv. sod. salicyl., gr. 8 to 3i lycopodium (*Bosworth*).
- (i) Pulv. sod. bicarb., gr. 15 to 3i lycopodium (*Bosworth*).
- (j) Pulv. silver nitrate (*Michel*).
- (k) Pulv. myrrh.
- (l) Pulv. quin. sulphat.
- (m) Bresgen's formulæ (*used successively*).

c. Stimulating sprays.

- (a) Oil of eucalyptus.
- (b) Dobell's solution.
- (c) Silver nitrate, 3i to 3i water.
- (d) Tincture of myrrh.

d. Caustics.

- (a) Stick silver (*to anterior chambers*).
- (b) Galvano-cautery, white heat (*Sajous, Mackenzie*).
- (c) Electricity.

e. Tampons.

- (a) Packed cotton wool (*Gottstein*).
- (b) Medicated wool (*Woakes*).

2. General. (1) Alteratives.

- a. Cod-liver oil.
- b. Syrup of the hypophosphites.
- c. Maltine.
- d. Stout.
- e. Syrup of iodide of iron.
- f. Quinine.
- g. Potassium iodide.
- h. Grindelia robusta.

(2) Hygienic.

- a. Change of climate (*to sea-side*).
- b. Good ventilation.
- c. Improved sanitation.

DIET.—Rich, nourishing. Plenty of milk and cream.

FORMULÆ.—1. Bresgen's formulæ (*silver nitrate powders*).

	(1)	(2)	(3)	(4)	(5)	(6)
R Argent. nitrat.,	gr. $\frac{3}{4}$,	gr. $1\frac{1}{2}$,	gr. $2\frac{1}{3}$,	gr. $3\frac{4}{5}$,	gr. $7\frac{1}{2}$,	gr. 15.
Pulv. amyli.,	gr. 154,	gr. 154,	gr. 154,	gr. 154,	gr. 154,	gr. 154.

2. Soothing application (*Goodhart and Starr*).

R Iodoform, 3ss;
 Ol. eucalypt., 3ss-i;
 Glycerini vel
 Vaseline, q.s. ad 3ii-iii. M.

S.—Apply to nostrils and nasal mucous membrane.

(To be continued.)

Clinical Memoranda.

ON THE DIFFICULTY EXPERIENCED IN THE DIAGNOSIS OF WHOOPING-COUGH FROM THE PRESENCE OF A TUBE IN THE TRACHEA.

BY JAMES FINLAYSON, M.D.,

Physician to Glasgow Western Infirmary, and to the Royal Hospital for Sick Children, Glasgow; Honorary Librarian to the Faculty of Physicians and Surgeons, Glasgow.

A BOY, six years old, was admitted to the Royal Hospital for Sick Children, Glasgow, on November 6, 1888. He was in such distress from urgent dyspnoea, due obviously to laryngeal obstruction, that in about an hour after his admission tracheotomy was performed by Dr. Hector C. Cameron. The breathing was at once relieved.

The case was at first suspected to be of diphtheritic nature, although no membrane was seen either before, or during, or after the operation. The boy was reported to have had a cough for a fortnight before his admission, and he was said to have vomited with his attacks of coughing.

After the operation the boy seemed to do well enough, but he continued to have a very troublesome cough, which was supposed to be connected, in part at least, with the irritation of the tube, etc. On the eighteenth day the tube was removed, and he did well enough without it. The cough still continued. After the removal of the tube the peculiar character of the cough began to excite my suspicions, and in three days the resemblance to whooping-cough became so great that his removal to the isolation ward was ordered; another three days the diagnosis was complete, and he was removed to the whooping-cough wards of the Fever Hospital, at Belvidere, on November 30. The report from there was that the case proved to be a mild one; the tracheotomy wound healed in a few days, and he was dismissed well on January 12.

Inquiry of the parents elicited the fact that others in the family, as well as this boy, were affected with a cough, which, after the patient's admission, had developed the character of whooping-cough in them also.

The case was, no doubt, one of whooping-cough, complicated by laryngitis, suddenly presenting a grave form of

obstruction. The idea of whooping-cough never entered my mind till after the tube was removed from the trachea, although the irritating sound of the coughing, with the air rushing through the tube, was heard repeatedly, and its cause could not be ascertained on physical examination of the chest.

Of course the presence of a tracheotomy-tube necessarily interfered with any manifestation of the spasm of the glottis, on which we rely for the most characteristic sign of this disease. The effect of the tube completely misled the diagnosis.

So far as we ascertained, no children in the ward were infected by his three weeks' residence here.

A complication like this is rare, so far as I know, and it may have some value in discussing certain theories relating to whooping-cough.

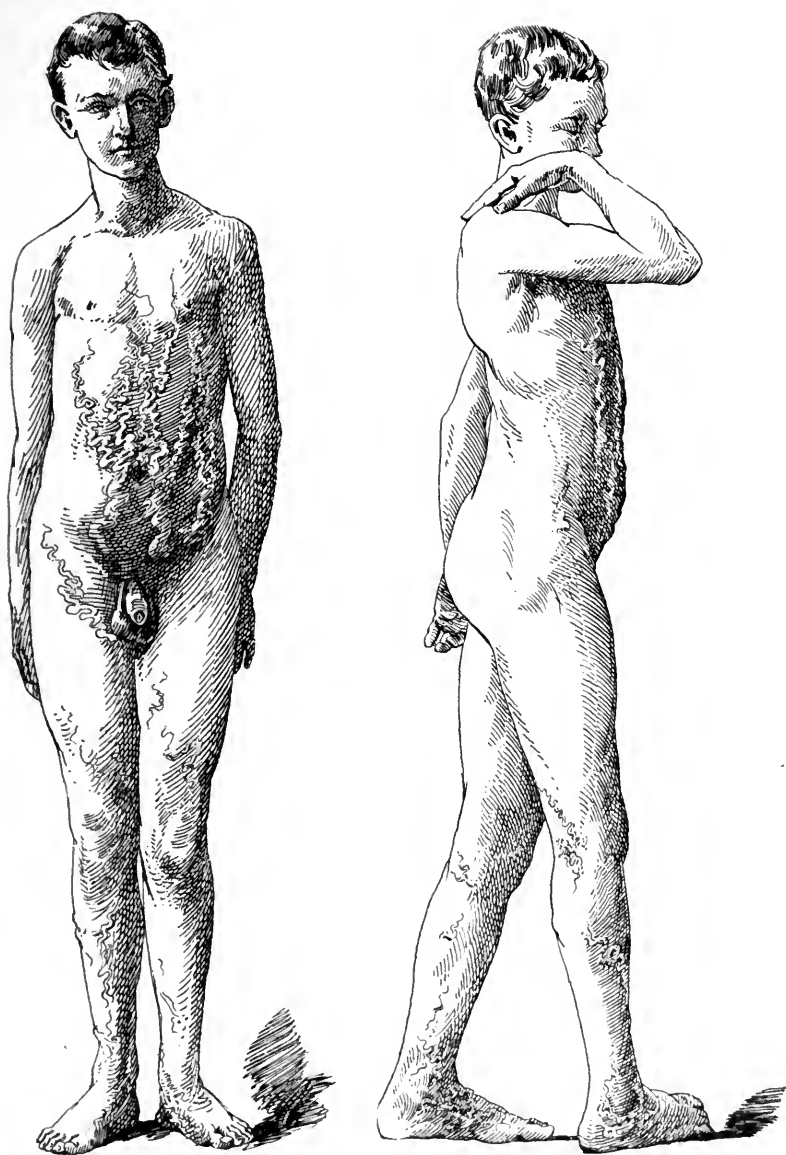
A CASE OF PROBABLE CONGENITAL OBLITERATION OF THE INFERIOR VENA CAVA, WITH RESULTING VARIX.

BY CHARLES L. SCUDDER, M.D.,

Assistant in Clinical Surgery, Harvard University, Boston, Mass.

THE patient was referred to me for the care of an ulcer of the right leg by Dr. J. Collins Warren, of Boston, to whom I am indebted for permission to report the case in full.

G. P., a boy seventeen years old, was born of healthy parents, who have five other children, all of whom are well and have no deformity. The mother noticed that while yet a baby this boy's veins seemed large over his belly, and the older children called the bluish configurations on the abdomen "a map." When two years old an attack of "brain trouble" caused him to screech "night and day," and at the same time he had "starting fits." Upon recovery from this "brain trouble" he had measles and whooping-cough. Although he has always been a delicate child, yet up to three years ago he was fairly well. At that time he had "typhoid fever," which lasted long and was severe, and left him very weak. The limbs swelled very much after this illness, and the veins of the lower extremities were larger than before. About six months ago an ulcer appeared on the right leg, which healed very slowly. At present the boy's height is one hundred and seventy-two centimetres, weight a little over fifty kilogrammes. He is thin and has a peculiarly tired look in the face.



Case of a boy seventeen years old. Probable congenital obliteration of the inferior vena cava, with resulting varix.



Upon examination of the body the appearances shown in the photographs are seen. The superficial abdominal thigh and leg-veins are prominent. The exact distribution of the enlargement can be seen accurately in the photographs and needs no further description.

Very small, fine veins are seen all over the surface of the lower extremities between the larger branches. There is a decided difference in the size of the two legs. There is no marked œdema present, but the whole mass of muscle of the calf and thigh seems full and distended. A recumbent posture and bandaging diminish the swollen condition very perceptibly. There are no hæmorrhoids, nor is there a varicocele. Any injury to the skin of the legs is followed invariably by a superficial ulcer which is slow in healing. At present there is a new ulcer on the left leg. The heart, lungs, and abdominal viscera are apparently, as far as careful physical examination can determine, in normal position and condition.

As to the probable cause of the present condition: The enlargement was noticed at birth, it therefore had its origin before birth. There is evidently an obstruction to the return of blood by the natural channels from the lower extremities.

The most probable explanation of this condition is that there is a congenital narrowing or obliteration of the inferior vena cava. Knowing the frequency of the occurrence of phlebitis after typhoid fever the increasing difficulty which this boy found after the illness from this fever is not to be wondered at. The case is unusual, and serves to illustrate the possibility of the existence of greatly enlarged and distended superficial and deep veins of the lower extremities without resulting œdema.

As for treatment, the boy is bathing regularly and carefully, avoiding slight knocks and bruises of the skin, and is wearing properly-fitting silk elastic stockings which reach to the knee. Operative interference is evidently not indicated.

ATROPINE IN ENURESIS.

BY CHARLES G. KERLEY, M.D.,

Resident Physician, New York Infant Asylum, Mt. Vernon, N. Y.

THE following is a brief account of a trial with atropia in twelve chronic bed-wetters in the New York Infant Asylum, Mt. Vernon, N. Y., and is published by the courtesy of the attending physicians:

Nine boys and three girls, the ages ranging from four to

ten years, were selected for treatment. All were in fair general health, and no cause of the trouble could be found. They had been through the usual routine treatment with strychnia, belladonna, etc., without improvement. They had always been troubled with enuresis; all wet two or three times during the night, and three once or twice during the day in addition to the nocturnal incontinence. The oldest, a boy of ten, was returned to us from the West, where he had been sent by the Children's Aid Society, having been pronounced incurable; he wet both day and night.

It is a custom in the institution to put the children to bed at six o'clock, and to take them up at ten o'clock to urinate.

Being desirous of testing the value of atropia, the habits of life were not changed. The plan of treatment followed was that used by Dr. William Perry Watson (October ARCHIVES, 1889). A solution, consisting of one grain of sulphate of atropia to one ounce of distilled water, was ordered, and of this one drop was given for every year of age of the patient, at 4 and 7 P.M.; one-half of this quantity was given, however, in each case for the first few days, no unpleasant symptoms followed, and the full amount was given.

Physiological symptoms were produced in three, but were slight and of no importance. After six weeks of treatment slight improvement was noticed in four,—would go one or two nights in a week without wetting; at the end of the third month these four wet but once or twice a week. Seven were practically well at the end of the fifth month, rarely wetting.

The treatment, however, was continued as before two months longer, when the dose was reduced one-half; this was given two months, and then stopped. It is nine months since the treatment was discontinued, and there has been no return of the trouble. The remaining five, which includes the girls, showed but slight improvement at the end of the fifth month of treatment, wetting nearly every night.

During the next three months the improvement was gradual, and at the end of the eighth month they wet not oftener than twice a week. During the tenth month there was only an occasional wetting. The dose was reduced one-half, and after one year of continuous treatment there was no wetting. The atropia was stopped, and there has been no return of the enuresis in six months. Eighteen months ago we had twelve chronic bed-wetters of the worst order; to-day they are well,—the only medicine used was atropia, given as above.

Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

Growth and its Part in Infant Pathology—New Treatment for Pelada—Treatment of Foreign Bodies in the Oesophagus—Foreign Bodies in the Larynx and Trachea—Betol or Naphtalol or Salinaphtol—Congenital Diaphragmatic Hernia—Treatment of Diphtheria by Ice—Treatment of Convulsions in Children.

Growth and its part in infant pathology.—An interesting work by Dr. Springer deals with the above subject. He defines growth as an act of nutrition, and studies its physiological evolution and what effect it has on pathological lesions, then he finishes by giving some considerations on the therapeutical side of the question. According to the author growth is characterized by cellular multiplication, as well as by the penetration into the organism of materials of nutrition, brought by ailments and by the oxygen of the air. It is placed under the dependency of two important factors, whose action is preponderating. The first one is heredity, and the second is the surroundings of the child. When growth is interfered with by either of the factors it is deviated from its normal course. The law of growth is inevitable and inherent to the organic substance in which it finds itself during the first part of life. Growth, of course, will go on in spite of everything, even when it does not find in the maternal organism the needed materials as to quality and quantity that it should have, and it is certain that it also impoverishes the mother's cellular elements already formed, and the newly-formed cells (of the new being) are at once constituted in an abnormal manner, therefore the entire new organism is weakened. The interesting part of this study of growth by Dr. Springer is that he takes a different view to that usually taken of growth. We are in the habit of thinking only of height, but this is not the real signification of growth, as the organism certainly does not grow in one direction, and the author is correct in saying that we must study it from cellular development. Growth is characterized, first, by the penetration into the cellular element of materials brought by nutrition, and then there is a multiplication of the cellular elements and forma-

tion of new elements. The importance of these facts consists in the part growth plays in the production of disease, and of the importance of our using tonics when growth is making itself felt. This is a study of the highest importance to those who have charge of children's medical care.

This state of things is not a matter of theory, as M. Springer has made experiments to prove, having fed a number of young dogs with milk, from which the salts had been extracted, he found, after a short time, that the cellular tissues had disappeared. From this experiment he concluded that, the dogs not finding the salts needed to complete the development of their bones, they had borrowed, as it were, the necessary elements from their cellular tissues, as the bones, notwithstanding the deprivation of the salts, had reached their normal length. There was then a sort of change in the nutrition of these animals; they had taken from their general nutrition for the nutrition of their bones, but at the expense of their cellular tissues. The result was a vice of organism that was apparent, and which consisted of a feebleness or weakness that laid them open to disease. Growth then becomes a source of weakness, not of itself, but indirectly, and we know that certain maladies are found only during growth, such as rachitis, scrofula, osteomyelitis, chlorosis, etc. The practical outcome of these facts is that a doctor is not to remain inactive during growth, but he should act both by alimentation and by drugs, and supply the waste and wants of the system during this critical period. As to the surroundings, it is quite possible by varying the mountains with the sea-side, the country with the city, that we can modify the nutrition of children while they are growing, and change the character of their ailments. Growth itself is also a cause of debilitation, and it is very important that the doctor make an attempt by his tonics, such as iron, etc., to help growth to be performed to the advantage of the individual, and much may be done in this way to combat the bad effects of hereditary faults and defects, although, of course, we cannot cure heredity itself, we can very often prevent its bad effects when we know them. We think that Dr. Springer's thesis should be the starting-point of a new inquiry into growth and its relation to practical medicine.

New treatment for pelada.—This form of alopecia is very common in France, or at least in Paris, where the children in the schools are often taken with it, and it is almost impossible to prevent its spreading. It is supposed to depend on some special nervous trouble, and is sometimes called *trophoneurosis*. Dr. Chatelain proposes a new and simple treatment that

consists in the application of iodated collodion. He uses a mixture of one-in-thirty, and applies a coating of it to the bald spots once a week. In five weeks complete cure is obtained. A few days after the first application the collodion coating is seen to rise from the new hair growing underneath, and in most cases ten days afterwards the hair takes on its normal color. Four or five applications was the most that was used to obtain a complete cure. The question arises, whether this treatment would be useful in more extensive cases of alopecia? It is possible, however, that its action is confined to those cases of pelada that are of parasitic origin, as the collodion prevents oxygen getting to the germs, which are supposed to be aërobic, and they die off. This treatment has one important advantage,—that is, it permits of the patient being allowed to go with other children without danger of contagion, as the part is isolated.

Contribution to the treatment of foreign bodies in the œsophagus by Dr. Polikier, of Warsaw.—This author gives a very simple method that may have its uses. He had been asked to see a child of five years of age that had swallowed a piece of money about the size of a five-cent nickel piece. Not being able to find anything by the internal examination of the throat, he tried to see what he could do by an external method. Placing his finger in the space between the trachea and the sterno-cleido-mastoid muscle on the left side, he made an effort by pushing upward. While remaining in this space, by careful touch he was able to find an elevation a little below the cricoid cartilage, which was no doubt the foreign body. While with one hand he tickled the child's throat, he made a sort of massage by pushing against the body upward and backward, when in a few seconds the child vomited the coin. The second case was one where the child had swallowed a silver piece (about the size of a quarter dollar), and the same manipulation succeeded in making the child vomit the piece. The conclusion that can be drawn from these two cases is that, notwithstanding the deep position of the œsophagus, it is possible to find a foreign body, in some cases, by external manipulation, and the simplicity of the method is worth a trial, rather than the usual efforts tending to push the body downward.

Foreign bodies in the larynx and trachea in children.—Professor Jules Simon has some remarks in a late clinic on this subject. A case of a child that had been eating chestnuts, and was at once attacked by suffocation with dyspnoea and yet *conservation of voice*, and absence of angina, left no doubt but that it had got a whole chestnut into the superior air-

passages. M. Thomas incised the trachea, and still the foreign body was not found, but the respiration was much better. After nine or ten days trying to get the foreign body out fever set in, and one day, on taking out the canula, the cause was found. It was a piece of chestnut skin, and notwithstanding its removal broncho-pneumonia set in and the child died. A second case of the same kind from swallowing a lobster's foot, in a child of five, terminated by giving it a vomitive and the expulsion of the foreign body. This ending is rare, however. It can sometimes be helped by placing the child's head down, but both it and the attempt of extraction by instruments, etc., are very uncertain. Tracheotomy is therefore nearly always indicated, and if it is made low down and the wound held open immediate expulsion sometimes follows. It is prudent to keep a canula in for a few days to prevent hemorrhage and subcutaneous emphysema of the neck. The canula is the best means of preventing hemorrhage, and, as the air coming from the tracheal wound might infiltrate the tissues of the neck, it is best to leave the canula in for a short time. After all cases of tracheotomy, after a day or two, the adherence will be good enough to allow of the wound being closed. Aspiration by the canula sometimes succeeds in extracting the foreign body, but the best means is to take out the canula from time to time and vary the position of the child while holding the wound open. The tracheotomy must be made under good antiseptic rules, and pure air provided for. If the child be among others who have various complaints, his chance of escaping a broncho-pneumonia is slight. The air, of course, must be passed through a sort of sieve of gauze covering the canula; the room must be well warmed, and spray of thymol, eucalyptol or tar should be used, while the canula must be extremely clean.

Betol or naphthalol or salinaphthol is a salicylate of naphthol that is now much recommended in children's diseases as an intestinal antiseptic. M. Yvon gives the following formula for its preparation. It should be held in suspension as follows:

R Gum water, 20 grammes;
Syr. aurantii floris, 30 grammes;
Betol, 1 gramme.

This gives twenty-five hundredths centigramme per dessert-spoonful, and all may be given in the twenty-four hours. The betol can be used also in the same dose (say four grains simply dissolved in milk), as the taste is very slight.

Congenital diaphragmatic hernia.—Dr. Gautier observed at the Paris Maternity a foetus that died in an hour after birth

from asphyxia from one of these hernia. The diagnosis was made at birth and confirmed by an autopsy. Indeed, in five of such cases the diagnosis had been made every time. The signs of this affection are, in fact, quite characteristic. The child, when it is born, does not cry as usual, and at once it falls into a state of apparent death. On making insufflation it seems as though one was blowing into a closed tube. Percussion shows that the heart is on the right side, and that side gives a dull or dense sound caused by the heart, the thymus, and the liver. This might lead to a diagnosis of pleurisy, but an important symptom is that the intestinal sonority continues without demarcation on the right side of the thorax. These important facts will permit of a diagnosis, when from any cause the post-mortem is not allowed to take place by the family, and the cause of death of a well-formed child is not apparent just after birth.

The treatment of diphtheria by ice.—Professor Bleynie, of Limoges, has written an article on this question, and we give a brief account of the conclusions of this author. The use of ice is easy, and does not present the slightest danger, and it has an efficacious action in this disease, but it would at least be imprudent to use it alone in such cases without adding some of the antiseptic treatments as well. It will, however, prevent the larynx being attacked by the disease if it is used quickly, but once croup has set in it will be found to be no longer efficacious.

Treatment of convulsions in children.—We extract a few notes on this subject from Dr. Decroizille's late book on children's diseases. First of all, the doctor who is called to treat such a case must be exceedingly calm and try to find the real cause of the trouble. The cause of convulsion is a matter that is complex, and the treatment is likewise. Indeed, it will often be found that no medical treatment proper will be needed, as the child will get better without drugs, for the cause may be simply a room too hot or a pin badly placed. Have the child stripped at once and the window opened, or put it into a bath and pour water on its head of a different temperature. It is well known that convulsions often occur from some irritation of the intestinal tube from food or from worms, so it would be well to look to this at once. If food is at fault, a simple tickling of the throat will cause vomiting and a stay of the convulsion. If not, give calomel in .10 to .20 centigramme doses. (Manna is a purgative often used in France under such circumstances.) A vermifuge is the next thought. The convulsions owing to teething are well known, and a doctor should be well posted on the eruption of the temporary

teeth, and know when each one should be due. Here lancing is considered useful by the author. If there is a hyperæmia of the brain, a few leeches behind the ears or placed at the inferior extremity of the thighs. If no result is obtained, then antispasmodics must be given (oxide of zinc, musk, and hyoscyamus). Bromide with chloral can be used, but opium must be given with care, if at all. Where the child is anæmic iron must be given afterwards, and the preparations that are combined now with pepsin are considered the best. In all cases, after the attack, the child must be kept in a dark room in perfect quiet.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Binet: Urology in Connection with Infantile Diseases. (*Rev. Mens. des Mal. de l'Enf.*, October, 1890.)

Albuminuria.—The citro-picric acid reagent of Esbach is approved. First, filter the urine, then pour a few centimetres of it into a tube, and then an equal quantity of the reagent. If there is albumen the mixture will become opalescent, or there will be a precipitate. Frequently it may be necessary to reach the boiling point before the precipitation will take place. Examinations for albumen were made in two hundred and fifty cases. In twenty-seven cases of pneumonia and broncho-pneumonia, albumen was found in large or small quantity. Albumen is usually associated with febrile oliguria; it disappears with defervescence and increases in the urine. It is a characteristic of all infectious diseases, though the rule is less absolute in children than in adults. In measles, albuminuria was present in 33 out of 34 cases, in scarlet fever in 34 out of 43, in erysipelas in 4 out of 5, in febrile roseola in 1, in typhoid fever in 5, in diphtheria in 36 out of 40; it was absent in 1 case of mumps and 2 of false croup. Albuminuria is transitory and not intense in most diseases with the exception of diphtheria, though in scarlatina it is present in a serious and rather permanent form in the secondary nephritis, which may occur as a complication. The albuminuria of diphtheria has no relation to the existence or intensity of the fever. It is present in fifty to seventy-four per cent. of cases. In 10 cases of pulmonary tuberculosis albuminuria was present in 5, and in 4 out of 6 cases of tubercular meningitis. In 6 cases of whooping-cough it was found only once, in 1 case out of 3 of athrepsia in very young children, in 2 out of 3 cases of scrofulous

cachexia with adenitis, in 1 case of acute perityphlitis, and in 1 of extensive burning. In 21 cases in which there was suppuration, especially in connection with carious bone, there was albumen in 11. Of 27 cases of nephritis, 21 occurred with infectious diseases, and 6 as chronic nephritis.

Peptonuria.—The peptones are hydrated albumens, soluble in water, diffusible, dialyzable, and not precipitated by heat, nitric acid, ferro-cyanide of potash, and acetic acid. They are easily precipitated by most of the reagents which precipitate the alkaloids, the precipitate being redissolved by heat and reappearing with cold. The reagents which are most frequently employed are phospho-tungstic acid, phospho-molybdic acid, tannin, iodo-iodurated solutions, iodo-mercuric and citro-picric solutions. The search for this substance is made in the same way as for albumen. If a precipitate is obtained it may consist of albumen, peptones, alkaloids, or urate of sodium. If it should be albumen, it will not be dissolved when heat is applied. If it should consist of alkaloids or peptones, heat will dissolve it; but the alkaloids, and quinine in particular, will respond to particular reactions for such substances. The acid urate of sodium forms a finely granular precipitate which appears more slowly than a precipitate of peptones; the latter will also give an opalescent appearance. If there is any doubt remaining, it may be settled by the murexide test. If the urine is albuminous, the albumen may be eliminated by Hoffmeister's method. Eichwald and Gerhardt were the first to determine the presence of peptonuria in cases of pneumonia, diphtheria, phosphorous poisoning, tertiary syphilis, peteghial typhus, and dothinerteritis. Jaksch discovered it in certain conditions in which there was change in the blood, scorbutus being one of these conditions. In the general infectious diseases it is usually absent. Peptonuria has been divided into the following groups: nephrogenic, pyrogenic, puerperal, hæmatogenic, enterogenic, hepatic, and urogenic. The blood normally contains no peptones, hence its presence indicates a non-assimilable material which the kidney should eliminate. Peptones were sought by the author in 248 cases of disease in children, and were found in 34. It was found in 5 cases out of 28 of pneumonia and broncho-pneumonia, in 1 case out of 2 of purulent pleurisy, in 1 case of severe febrile roseola, in 10 cases out of 37 of diphtheria, in 3 cases out of 21 in which there was suppuration, in 1 case out of 6 of athrepsia, in 13 out of 23 of nephritis. In the 34 cases of peptonuria there were 32 in which there was also albuminuria. The methods of investigation now in use are not yet sufficiently exact.

Diaceturia.—If to normal urine a solution of perchloride of iron is added, there will be a precipitate of phosphate of iron; if perchloride of iron is still added, the precipitate will be dissolved and the urine will assume an amber color, or, in other cases, the color of red wine, which will become less marked by boiling, and will disappear if acids are added. These reactions will not take place if the urine is first submitted to prolonged boiling. Jaksch considers this reaction due to aceto-acetic acid or its ethers, and he has given the name diaceturia to the elimination by the urine of its acetic acids, its salts, and its ethers. He has determined its presence in diabetes and in several febrile diseases, and has also found that it might exist as the expression of a particular auto-intoxication. Febrile diaceturia is of frequent occurrence, but is not of serious prognostic significance. In diabetes it is a grave symptom, and frequently announces the advent of coma. In 150 examinations the author determined diaceturia in 69. It was found 19 times in 23 cases of pneumonia and bronchopneumonia, in 16 out of 26 of measles, in 27 out of 34 of scarlet fever, in 4 cases of erysipelas, in 11 out of 31 of diphtheria, in 2 out of 13 cases of suppuration, in 2 out of 4 of typhoid fever, in 2 out of 4 of tubercular meningitis, in 1 of acute perityphlitis, in 1 of extensive burning, in 2 out of 15 of acute nephritis, in 1 of solid tumor of the iliac fossa. Diaceturia may be considered as of frequent occurrence in infectious febrile diseases, and particularly in scarlet fever. It occurs exceptionally in uncomplicated diphtheria. A. F. C.

Triwauasse: Treatment of Diphtheria and Scarlatina by Inoculation with the Microbes of Erysipelas. (*Rev. Mens. des Mal. de l'Enf.*, November, 1890.)

Babchinsky decided to practice his first experiment which has been recorded in this paper after having had three successful cases of diphtheria, which were complicated, in the ordinary course of the disease, with diphtheria. Fourteen inoculations were made, one upon a patient suffering with scarlatina, and the remaining thirteen upon those who were suffering with diphtheria. Among the patients were children two, four, and six years of age, presenting severe gangrenous forms of the disease. The latter (diphtheria) advanced somewhat after the inoculation, and the erysipelas appeared in four, eight, ten, or twelve hours. As the erysipelatos process progressed, the diphtheritic membranes disappeared, and the temperature decreased,—this in spite of the fact that erysipelas usually develops with great and rapid elevation of temperature. Grigorovitch arrived at the same conclusions as

Babchinsky in regard to the antagonism of diphtheria and erysipelas, from a similar experience in seeing the two diseases coexisting in the same patient. In his case a surgeon had accidentally inoculated a child suffering from diphtheria by rubbing it with an ointment which he was also using upon the breast of a woman who was suffering with erysipelas.

The author of this paper states that erysipelas may appear within half an hour after inoculation, though Fehleisen found that in men it did not usually appear until nineteen to sixty-one hours after inoculation. Meerowitch found that in guinea-pigs the disease appeared in from one to three days after inoculation. In Babchinsky's experiments it developed in four to twelve hours. The experiments of the author lead to negative conclusions when compared with those of Babchinsky, and would tend to restrain those who were tempted to inoculate their diphtheritic patients with erysipelas. Two severe cases of diphtheria and one of scarlatina are narrated in which the appearance of erysipelas as a complication served to intensify the initial disease, and did not prevent a fatal issue. The author, therefore, is opposed to the practice of any experiments so dangerous as those of Babchinsky. A. F. C.

Fox: The Care of the Teeth in Childhood. (*The Lancet*, November, 1890.)

Doubtless many of the dental troubles of adult life are due to a careless disregard of the teeth when first erupted, and during the earlier years of life. Caries is the most frequent disease of the dental structures, occurring, as a rule, in early adolescence, soon after the teeth have been exposed to the wear and tear of their function, when the perfection of their structural development is put to the test, and is but too often found wanting, and in consequence of inherent defect incapable of resisting the action of pernicious influences, such as pressure of contiguous teeth, the solvent properties of abnormal saliva, and acid mucous secretion of the gums and oral tissues.

These conditions being the immediate causes of delay, the deposition of tartar of a peculiarly destructive character forming a nidus for the growth of bacteria and leptothrix, and rapidly affecting the enamel by disintegrating its structure; alveolar abscess and necrosis of the roots of the temporary teeth; the presence in the dental arch of supernumerary teeth, and other abnormal conditions call for prompt treatment. For not only is an irregular position of the teeth disfiguring, but by the increased and continuous pressure upon contiguous teeth, which this condition usually entails, it constitutes a most

frequent cause of decay of their structures as well as being an occasional cause of certain systemic derangements arising from reflex nervous irritation.

Lys, H. G.: An Epidemic of Diphtheria. (*The Lancet*, November 8, 1890.)

The epidemic extended to one hundred and ten cases, distributed in three villages, with an aggregate population of about twenty-three hundred.

Source of infection.—No source of the disease was discoverable other than that a woman who came into the town from a house where there had been bad sore throats. The sanitary conditions of the villages are excellent. The water comes from different sources, and the users of each and every supply were attacked indifferently. In more than ninety per cent. of the cases, intercourse with infected persons was demonstrable. Thus, personal infection was the means by which the disease was both distributed and introduced into the district.

Diphtheria is not always so highly contagious. It is interesting that such an epidemic may occur, propagated by personal infection, without the coexistence of insanitary conditions.

Incubation.—In many cases the period of incubation has certainly been very short, certainly less than thirty-six hours, and sometimes apparently less than twenty-four. Such cases as the following are illustrative: On March 1, a little girl came to her home from staying with relatives outside the infected district. Some of the family had suffered in her absence. On the evening of March 2 she was severely ill with diphtheria. On April 6, an infant was nursed by her sister, who was convalescent from the disease. Till this time they had been kept rigidly separated, although in the same house. Laryngeal diphtheria was established on April 7. On the night of April 7, a girl, aged fourteen, having her sick brother fall in his room, went to help him. Previous separation of the sick and healthy had been rigidly maintained in this house. The following evening, twenty hours after, the girl fell ill with the disease. In many other cases where the evidence of rigid separation is less trustworthy the circumstances point, nevertheless, to an equally short period of incubation. The cases cited have to be considered in the light of the fact that the epidemic had no common origin, and that the closer the source of each case is investigated the more universally does some direct opportunity of personal infection prove to have occurred.

Persistence of infection.—Although isolation for two or three weeks is usually considered enough, the following cases seem

to show that even a longer time may be quite insufficient. In one house the first case appeared on January 24, quarantine was not relaxed till February 20, when the patient had been apparently quite well for three weeks; yet another member of the family was attacked on February 22. Again, in another house where the disease reappeared on March 1, the last case was one which proved fatal on February 4, and the previous cases dated from December 23 and 24.

Post-diphtherial inflammatory conditions of the throat.—No recrudescence was observed. The most of the cases were inspected from time to time for six months after the attack.

General redness of the fauces, associated in many cases with hypertrophy of tonsils, or follicular tonsillitis was pretty general. One case with such a throat seemed to give infection several months afterwards. Great care was taken to isolate convalescents until their throats seemed perfectly healthy.

Laryngeal diphtheria occurred primarily in four cases; in the first one hundred cases three being fatal.

In only one case of the remaining ninety-six was extension to the larynx evident, and this case proved fatal. The age of the primary laryngeal cases were one and a half, two, six, and eight, the last being the case which recovered.

Age.—Eight per cent. were adults, none of whom suffered severely; sixty per cent. were below ten years of age; and thirty per cent. between ten and twenty; beyond this no special proclivity of any age was apparent.

Mortality.—Of the first one hundred cases eleven were fatal; the causes of death were: primary laryngeal diphtheria, three; extension to air-passages from fauces, one; cardiac failure, seven. The subsequent cases presented no complications.

In only one case was there evident nasal implication, and only one case was followed by paralysis of such a degree as to have been brought under notice.

Reed, B.: *The Tepid Bath as a Sedative in Young Children.* (*N. Y. Med. Rec.*, 1890, xxxviii. 378.)

The details of two cases are given, which seemed to show that baths may be made especially useful in some of the acute diseases of children, and that tepid baths under proper precautions may exert a very marked sedative influence. The writer is fully convinced that the tepid bath is a most efficient sedative, particularly when there is cerebral irritation, and that it is probably at least as sure as any of our ordinary anodyne remedies in the control of abdominal pain in young children, after the bowels have been thoroughly opened so as to remove offending causes, such as partly-digested food.

Daly, W. H.: On the Medical Treatment of Diphtheria. (*Journ. Am. Med. Assoc.*, 1890, xv. 534.)

The following rules are advocated: 1. Give calomel in its purity; 2. Give it in large doses; 3. Give it frequently; 4. Give it until you have the free and characteristic catharsis; 5. Give light, nutritious diet; 6. Give little or no other medicine; 7. Keep your patient recumbent until convalescence is far advanced.

Yale, Leroy M.: Vegetables as Food for Young Children. (*Babyhood*, New York, 1890, vi. 359.)

There are two ways in which food may be considered: first, is it distinctly nutritious and digestible? or, secondly, can it be eaten without harm? or, in other words, may one indulge the palate so much as to take it? The child does indeed, after a certain time, need a varied diet. But it is not to be varied so much in multiplicity of articles as in supplying the various needed components of all human food.

While on a good full breast, the supply is all that it needs for many months, perhaps for a year, and then this diet is supplemented or replaced by other food, which, by common consent, must largely consist of the milk of some domestic animal. To the latter are usually added some preparation from the group of cereals, owing to their high nutritive value, and often to the peculiar way in which the combination of the two makes good the deficiencies of either. The time to enlarge this dietary is more often injudiciously hurried than delayed. At the age of eighteen months, or until the end of the second year, white baked potatoes and boiled rice may be added to the dietary. Cereals of various kinds (including bread) are assumed to be already included.

Cabbage, cauliflower, and Brussels sprouts should not be given to a child at all under the age of four, nor, indeed, for some years later. The nutritive value of this group, especially of their salts, is well recognized; but they are, even if digested in the ordinary sense, liable to disturb digestion by their strong oils. The same may be said of the onion. The turnip and parsnip may be placed in this group because, while possibly less hard to digest than the preceding vegetables, their nutritive value is not sufficiently high to offset their disadvantages. All of the foregoing strong-flavored vegetables are considered as favoring flatulence. The carrot also, while a wholesome food for adults, disagrees easily with a delicate stomach, and we think that a young child is better without it.

Boiled celery, asparagus, salsify, and gombo are not very

valuable as nutrients. The gombo generally involves so much condiment or so many intricacies of cooking that we speak doubtingly of its admissibility; but by itself it seems harmless. The salsify is to be boiled and asparagus plainly dressed. With these restrictions, they may be sparingly admitted, but not recommended, after the third or fourth year, at the mid-day meal. The egg-plant owes so much of its palatableness to methods of cooking not suitable for children that it should also go in the postponed list. Lettuce may be placed in the same category, or eaten with salt only.

The tomato requires condiments inadmissible for children; stewed, it may be given after four years and possibly earlier, but not at a meal when milk is used. Sweet potatoes and Jerusalem artichokes are less easily digested than potatoes, and we think that they should not be used until after the third year is completed. Green peas, if fresh, tender, and well-cooked, are generally given at three years of age. French beans, shelled, belong in nearly the same place, while string beans usually would be better postponed until a year later. Baked beans, with pork, are a most valuable nutritive combination, but they are not the most digestible mixture possible. Beans stewed may be rather better. Scraped green corn, if from selected ears, we have regarded as about on the same footing as string beans.

The summer squashes, meaning the watery varieties, have little nutritive value; but the pulp, carefully freed from the seeds, may be placed beside the last-mentioned vegetable. The winter squashes, that is to say, the ones with firm flesh, such as are used for pies, are about of the same digestibility and nutritive value as sweet potatoes, and if stewed or roasted, may be sparingly used under the same circumstances. But the delicious pie is not "meat for babes." Spinach, well boiled and finely minced, we have considered as generally easily digested, and permit it, unless there are indications to the contrary, at three years of age. The beet tops are somewhat less desirable because not so tender. In giving vegetables to children, it hardly need be said that they are not to be given after the mid-day meal, nor also that it is assumed that all of these vegetables are obtainable in their best condition.

Starr, Louis: *Massage in Pediatrics.* (*Annals Gynec. and Pæd.*, Phila., 1890, iii. 665, and iv. 47.)

Massage is an art, and, like every other art, requires study and patient preparation for its successful practice. It is a powerful remedy, too, and, like other agents of its class, as potent for evil as for good in unskilled hands. Therefore, to

insure good results, a trained masseur is necessary, and she must act under the directions of the physician. Before entering upon the therapeutic application of massage proper, it will be well to revert to the process of simple rubbing. This is of much value as a general hygienic measure. Each day after the bath, the skin having been thoroughly dried by a soft, warm towel, the whole surface should be gently rubbed with the palm of the hand, the process occupying about five minutes. This increases the capillary circulation, encourages thorough reaction, aids nutrition, and adds vigor to the frame. Weakly children, especially, thrive under it. In older children, friction with a soft towel may be substituted for the hand-rubbing, but the change should not be made before the fifth or sixth year.

Massage may be employed with advantage in the following diseases of childhood :

(a) *Chronic gastro-intestinal catarrh.*—In this condition the skin is harsh and dry, the muscle-tone is faulty, general nutrition is impaired, and there is a determination of blood from the surface towards the mucous membrane. A warm bath is administered every evening just before bedtime, the patient remaining in the water for five minutes; then the surface is thoroughly dried, and half an ounce of olive oil is gently rubbed into the skin; the child is then enveloped in a light blanket and put to bed. After a little time diaphoresis begins. So soon as the sweating is free the skin is again dried and the night-dress put on in preparation for sleep. Next morning the child is subjected to twenty minutes massage.

(b) *Constipation.*—Manipulation is a very efficient remedy in habitual constipation. The best method is to follow the natural course of the fæces through the colon; thus, beginning in the right iliac region, proceed upward to the right hypochondrium, cross over to the left hypochondrium, and then downward to the left iliac region. Five or ten minutes every morning, or every morning and evening in obstinate cases, constitutes the proper duration and frequency of the applications. The pressure must be gentle, as delicate tissues are being dealt with. In this condition the combination of massage with the inunction of warm olive oil or a weak ammonia liniment is more efficient than the dry method.

(c) *Colic.*—Two or three minutes effleurage may be resorted to, as the urgency of the symptoms require, with the most satisfactory effect. In this connection it must be remembered, also, that rubbing the feet, to increase the circulation there, is an important aid in relieving colic.

(d) *General debility and anæmia.*—These conditions are

much benefited by short, frequently-repeated courses of massage. Manipulation improves the general condition, and strength is rapidly gained.

(e) *Infantile paralysis*.—Here massage of the paralyzed muscles brings more blood into them, and maintains their nutrition until, in favorable cases, new cells in the cord take on the functions of those which have been destroyed. In recent cases the sittings should be of short duration and frequently repeated, five or ten minutes three to four times daily. As improvement advances, the frequency may be reduced, and in chronic cases twice a day will be sufficient at any time. Electricity is of great aid, but it should not be used until about three weeks after the onset of the paralysis, earlier application being attended by the risk of increasing spinal congestion.

(f) *Chorea*.—At the onset of the attack the patient is put to bed, given a good supply of good food, and allowed to rest for two days without massage. At the end of this time the regular treatment is initiated. The child, at seven years of age, for example, has at 5.30 A.M. half a pint of warm milk; 7 A.M., half a pint of milk and three slices of bread and butter (each slice an ounce in weight); 9.45 A.M., a teaspoonful of Merck's dry malt in a little milk; 10 A.M., massage for fifteen minutes, followed by half a pint of warm milk; 12.30 P.M., a teacupful of rice pudding, half a pint of milk, green vegetables and mashed potatoes; 4.15 P.M., half a pint of warm milk, three slices of bread and butter, and a lightly-boiled egg; 7 P.M., malt as before; 7.30 P.M., massage for fifteen minutes, followed by half a pint of milk. At the end of ten days or a fortnight, the bread and butter is increased to four slices at 7 A.M., and 4.15 P.M. a lean broiled chop is added to the mid-day meal, and an extra pint of milk is distributed over the twenty-four hours. It is a golden rule never to hurry these patients out of bed. While carrying out this plan recovery is more rapid under the use of Fowler's solution, administered in daily increasing doses.

(g) Other nervous diseases in which massage is employed with success are pseudo-hypertrophic paralysis, facial paralysis, neurasthenia, spinal irritability occurring in girls about the approach of puberty, and that ill-defined and painful condition so often encountered in young subjects, known as "growing-pains."

(h) Pleuritic effusions (serous), fibroid pleurisy, enlarged lymphatic glands, and stiffened rheumatic joints are all benefited by rubbing. In these special instances all the manipulations are generally combined with the use of embrocations, though the curative effect cannot be attributed to the latter

alone. In conclusion, those cases in which the manipulation is followed by a sensation of comfort or refreshing sleep are most benefited by it. On the contrary, those cases which are stimulated derive little benefit, and perhaps positive injury, from the process.

Crothers, T. D.: *Alcoholic Heredity in Diseases of Children.* (*Journ. Am. Med. Assoc.*, 1890, xv. 531.)

No fact is more firmly established than alcoholic ancestors will transmit to their children defective brain and nerve power. The form and shape of this defect and its manifestations will vary widely. In all cases where alcoholic ancestors, even back to the second generation, can be traced, there are certain predispositions which must be considered in the treatment.

First. A tendency to exhaustion from feeble vitality, and low power of restoration. *Second.* An instability of cell and nerve function, and strong predisposition to develop into some particular form of degeneration, which is practically an exhaustion of the higher brain centres with craving for relief. *Third.* There is a special affinity for all nerve stimulants by those higher brain centres. Their use constantly interferes with natural development of brain energy from food.

The general principles which should govern in the treatment may be grouped as follows: 1. No form of alcohol is safe, and narcotics of all kinds should be used with great care. 2. The diet should not include meats of any kinds, because of their stimulating character; while meats contain much food force, they act as stimulants to a brain already over-stimulated and exhausted, and increase the peril of nervous disease, the pathological tendency of all these cases is to become alcohol-takers and meat-eaters, hence the diet should always be non-stimulating and farinaceous, and should be carried out with military regularity. 3. The hygienic treatment is also of the greatest importance; every means and measure which can build up a system, and avoid brain and nerve stimulation, is required. 4. Cases of this character should be guarded against every possible extreme, both in the surroundings and physical conditions that are under the control of the physician. The tendency of all energy and nerve force is to pass off in explosions, which should be counteracted; the diseases they suffer from show this tendency to concentrate and become intensified in certain directions, also to manifest distinct exacerbations. Finally, the fact of an alcoholic heredity in diseases of children that we are called upon to treat gives a wider therapeutical range of possibilities, both in direct and preventive medicine.

Recent studies of alcohol cases show that over seventy per cent. are directly inherited. If this is confirmed by later studies, the treatment of inebriety will in the future begin in infancy, and the higher science and art of medicine will win its greatest triumphs along the line of prevention.

II.—MEDICINE.

Handford: Cases of Cerebral Disease Resembling Tumor, terminating in Recovery. (*The Lancet*, October 18, 1890.)

The writer reports four cases. They are of interest as showing the degree to which recovery may attain in cerebral disease of very grave though somewhat uncertain character.

CASE I.—A boy aged nine years. There was a history of phthisis on the mother's side. Two years ago he had an abscess at the back of the neck, and has not been well since. Shortly after this his head began to enlarge; he had attacks of headache and vomiting. About a year ago he suddenly found the use of his right leg gone. He soon became confined to his bed; could not raise his head from the pillow more than two inches. Intelligence remained normal, complained of giddiness when lying on his back.

Sometimes passed urine and fæces into the bed. Sight began to fail about a year ago, and since three months he has been quite blind. He recovered sufficiently to become a pupil at the blind institution. Subsequently he had a severe attack of chorea, from which he recovered in six or eight weeks. The blindness remains, but the paralysis has disappeared.

CASE II.—A boy, aged thirteen years, had a year previously an injury to his head, and since then he has had fits. While under observation he became quite blind from neuro-retinitis, resulting in white atrophy. He lost the use of the left arm and leg, and had imperfect control over the bladder and rectum. He recovered from the paralysis, but left the hospital quite blind.

CASE III.—A boy, aged sixteen years, complained of paralysis and loss of sight when he came under observation. Illness began one and a half years ago, with severe headache in the frontal and occipital regions. Ten months ago had a convulsion. Began to lose the use of his legs eighteen months ago. Has been in bed nearly a year. Muscular sense, common sensation, and the sense of heat and pain are good everywhere. Intelligence fair and memory is good. Has lost control over bladder and rectum. About six months ago he became quite blind. Both disks are white and atrophied.

The diagnosis was between cerebral tumor, probably tubercular, and chronic meningitis. The patient improved enough to be able to stand and walk with little assistance. Has no headache or pain. Intelligence and memory seemed not affected. He remains perfectly blind.

CASE IV.—The patient was a boy aged eight years, the youngest of eight children, all healthy. Was first noticed to be dull, followed by vomiting, independent of food in the stomach. Headache generally preceded the vomiting. Had difficulty in walking; he sways about, turns to the right, and often falls, then always backward. Can stand with the eyes closed only if the feet are far apart.

He could read, and was not aware of any failure of sight. The ophthalmoscope shows very extensive neuro-retinitis in both eyes. The diagnosis lay open between a tumor of the cerebellum and chronic meningitis.

The patient was treated with iodide of potassium, and in a few months got quite well, with preservation of his sight.

Montague, Murray: Cretinism. (*The Lancet*, December 6, 1890.)

Three cases of cretinism were reported, one a boy aged sixteen, a girl of six, and a baby of one year and a half.

The boy showed no sign of puberty, and was sufficiently intelligent to run errands for his mother.

The girl presented a mottling of the skin where the circulation was bad, and there was a development of fatty lumps along the course of some of the muscles. The temperature of the two younger was subnormal, while that of the boy was normal. Etiologically, nothing could be discovered, both the parents being healthy.

Dr. Walter Carr showed a distinct, though not very marked, case of sporadic cretinism in a child four years old. There was nothing of importance in the family history, though the mother had had a fright during pregnancy.

It was stunted in growth, unable to stand or walk, and was very deficient in intellect: it never spoke and took little or no notice of its surroundings. It presented a dry skin with excess of subcutaneous tissue, a short neck, a large, prominent abdomen, short, broad, thick hands and feet, dry, stiff hair, a flat nose, and thick lips. Its temperature was normal, and the thyroid was completely absent.

Dr. Hadden, in commenting on Dr. Murray's cases, spoke of fatty tumors following the contour of the muscles. He believed that it was a condition not previously described.

Dr. Edmund Owen called attention to the fact that in the

four cases there was complete absence of the thyroid gland. He attributed the general condition to this congenital defect, and alluded to that important series of vivisection experiments which had shown that if the thyroid gland was removed in young monkeys a cretinoid condition was developed. Myxœdema was represented in childhood by sporadic cretinism. Mr. Black suggested that the implantation of the thyroid of animals might be tried.

Doudney, G. H.: A Case of Mumps followed by Meningitis. (*The Lancet*, November 29, 1890.)

The following case occurred in an epidemic of mumps, chiefly remarkable for the number of adult sufferers, and the frequency of the complication of orchitis.

The man, aged thirty-five, had been in fair health, except a tendency to headache and sluggish bowels.

He contracted the disease, and feeling better on the fourth day, took a ride of ten miles. The next day he had developed orchitis and the parotid swelling was almost gone. Headache developed and became most acute; there was insomnia, mental state excited, with tendency to ramble, pupils contracted, eyes injected, urine scanty; there was nausea and vomiting. The temperature rose to 105° ; the pulse 120° hard and bounding. The slightest noise troubled him. The symptoms lasted four days, then there was a gradual decline and return to normal. The headache was the last symptom to disappear.

Although brain symptoms are alluded to in connection with mumps in some text-books, the author has never found any detailed cases.

Voelcker, A. P.: Empyema Communicating with Œsophagus. (*The Lancet*, December 20, 1890.)

The patient was a boy, aged six years, who when admitted had a cough, with expectoration of blood and pus, night sweats, and wasting. The left side of the chest was dull, and the heart's apex displaced. Aspiration yielded two ounces of fetid pus. Later a portion of rib was resected and a counter-opening made. He improved, but it was found sometime afterwards that fluids came through the wound a few seconds after they were swallowed. Gastrostomy was attempted, but, owing to adhesions, could not be carried out. At the necropsy an adherent lung, with falling in of the chest and secondary lateral curvature, was found, and there were two openings in the left side of the Œsophagus above the diaphragm. The author thought that the empyema had existed for a year before admission, and had ruptured into the lung. The appearances

negatived the idea of primary trouble in the œsophagus, or of the lesion being produced by the rupturing of caseous glands. There was no trace of lardaceous disease.

Clark, Sir Andrew : Barking Cough of Puberty. (*The Lancet*, December 20, 1890.)

The author of this paper reports in detail three cases of this affection. All the cases, and also their parents and families, were "nervous." Cases not nervous have come under the writer's notice.

The affection occurs more commonly in girls. In considering the nature of the convulsive cough of puberty, one must keep in mind the extent, variety, and character of the changes which occur in the organism during the final evolution of sex. One obvious result of these activities is that the whole central nervous system is brought into unstable equilibrium, and is ready in irritable organisms to explode on small provocations into convulsive action.

No local changes adequate to the explanation are to be found in the pharynx, larynx, or lungs. It disappears with or shortly after the complete evolution of sex.

The cases, though tedious and prolonged, have ended eventually in complete recovery.

The treatment is unsatisfactory, yet with appropriate regimen, sedative applications to the throat, and the administration certain internal remedies the affection has been made milder. Attention must be paid to clothing, bathing, and exercise. The useful applications to the interior of the throat are two : glycerin of borax with oxychlorate of bismuth and morphia, and the same with the substitution of cocaine, ten per cent. for morphine.

The use of syrup of the bromide of quinine and iron with small doses of arsenic has been followed with benefit. A pill of reduced iron, valerianate of zinc, belladonna, and nux, seem useful also.

In the discussion following the reading of the paper, Dr. Althus thought that a similar cough was met with in some cases of locomotor ataxia. In mild cases it resembled exactly the first case the author had described. Recent researches had demonstrated the presence of a cough-centre in the medulla oblongata, in the region of the ala cinerea, above the respiratory centre.

Dr. Gowers had seen a few cases of the kind. They are divided into three classes : (1) Those in girls associated with other nervous symptoms, and classed as hysterical ; (2) in boys—usually more severe—in some local habit spasm, and

resembling true chorea ; and (3) the symptom existed alone, and was associated with habits of masturbation. He agreed that it differed from ataxic cough.

Dr. Kerr had met with it almost exclusively in girls.

Dr. Mackenzie had found it to be more frequent before puberty. The condition was closely allied to hysteria or habit spasm, and the lower centres became active owing to a want of inhibitory control. The treatment, therefore, should be moral rather than medical, and he had adopted two plans : either to ignore the trouble or to frighten or punish the patients, as by cold shower-baths or strong galvanism. The majority of cases had been boys.

Dr. Hall could not distinguish it from the neurotic cough of hysterical young women, and, therefore, could not regard it as a clinical entity.

Tonic treatment with moral persuasion did good.

Dr. Angel Money had found in one case distinct volitional weakness of the laryngeal abductors, and thought that inquiry should be made for a past history of rickets or laryngismus stridulus.

Dr. Semon thought that the cases divided themselves into two groups,—paroxysmal and rhythmical. It was not limited to puberty, and in spite of its intensity had apparently no effect on the general health. In five cases out of seven a short sea-voyage appeared to be the cause of cure.

Dr. Maclogan referred to a case in a young lady of sixteen, who was a stout, over-fed girl. The cough was convulsive and alternated with fits, which were associated with double strabismus and convulsions of the arm. She got quite well at home unnoticed.

Dr. Kidd referred to a case cured by excising slightly enlarged tonsils.

Dr. Ewart said that in many cases there were some peripheral fault, perhaps in the domain of the fifth nerve. It had disappeared with the eruption of a tooth.

Dr. Lauder Brunton said that all these cases seemed to show greater excitability of the nervous system in the region of the respiratory and cough-centres, associated with peripheral irritation in the larynx and its neighborhood.

Sir Andrew Clark, in reply, said that probably the seat of it was in those spinal ganglia which had recently been shown to exercise such control over the respiratory movements.

Coutts : A Case of Rheumatic Periosteal Node. (*The Lancet*, October, 20, 1890.)

In the cases of which this is an example, the affection of the

periosteum appears to have no relationship to the inflammation of the joint,—it has not spread from it.

The patient was ten years of age, she was suffering from rheumatism and chorea. The mother had had rheumatism. There was no history of any neurosis or phthisis in her family.

On admission the child was well nourished. There were slight purposeless movements present about the head and limbs. No joints were swollen. The first sound of the heart at the apex was blurred and prolonged, rumbling in character at times.

Over the tenth dorsal vertebra was a well-marked nodule, movable, the size of a three-penny piece. Other nodules of smaller sizes were situated over the points of both elbows, the occipital protuberance, the external tuberosity of the left tibia, and near the spine of the left scapula.

About an inch below the olecranon on the subcutaneous surface of the right ulna is a hard, immovable node evidently subperiosteal. This is about as large as half a medium-sized walnut, with its long diameter in the axis of that of the limb. Over this node is a nodule freely movable, and quite distinct from the bony swelling beneath it. No other nodules elsewhere.

Subsequently, while under treatment, and while resting in bed, a presystolic and a systolic murmur developed. The node and nodules gradually decreased,—the latter finally disappeared. Distinct thickening was left over the situation of the node.

There are few indisputable cases of periosteal node in rheumatism on record. The author refers to five cases. In all these the presence of heart-disease, subcutaneous nodules, and other manifestations of acute rheumatism, with that of the periosteal swelling, left no room for doubt of the rheumatic origin of the latter. In these cases there was no history of syphilis, congenital or acquired. There was also no reason to suspect a traumatic origin.

In conclusion, the author says that it does not follow that every node occurring in a rheumatic case is necessarily rheumatic in origin. The clinical history of these surgical rheumatic nodes is very different from that of temporary ones accompanying the acuter signs of rheumatism.

Daniels: Congenital Inclusion of One Eye. (*The Lancet*, October 11, 1890.)

This malformation was discovered in an Indian child, aged two years. The patient was well developed and normal in other respects. The right eye was small and partially opaque.

The eyelids of the left eye were well formed, but on separating them no trace of the eye could be seen; the interval between them leading into a *cul-de-sac*. The eyeball itself could be readily felt beneath the lower lid. The orbit was the same size as the right one.

An operation was attempted by cutting through the mucous surfaces at the bottom of the *cul-de-sac*. The eyeball was found, but small, and composed of a thin, transparent membrane containing fluid, not tense. It was obviously useless. No explanation of the malformation is given.

Knoff: Pericarditis in Childhood. (*Rev. Mens. des Mal. de l'Enf.*, April, 1890.)

Ten cases of pericarditis in children were reported by the author. Of these ten there were three under one year of age, three between one and two, and four between six and ten. In the new-born pericarditis is most frequently due to a septicæmic process, the point of departure of which is in the maternal organism or in the umbilicus. Among the chronic diseases, tuberculosis predisposes to pericarditis, so also do all the inflammatory processes of the pleura, the lungs, the sternum, the vertebral column, the bronchial and mediastinal glands, the thymus, and the œsophagus. Inflammations of the abdominal organs and the peritoneum may also give rise to pericarditis. In six of the author's cases the pericarditis was determined by inflammatory processes of the pleura and lungs. In one it was due to chorea, in two it was consecutive to scarlatina, and in one the cause could not be ascertained. In the youngest patients minute and repeated examinations did not reveal any of the ordinary symptoms of pericarditis, such as weakening of the heart-sounds, increase in the cardiac dulness, the disease developing without any appreciable symptom. By autopsy it was ascertained that the exudation was usually not abundant, hence it could not influence the extent of dulness, the position of the heart, and the displacement of the contiguous organs. The exudation was also of an uniform degree of fluidity, without fibrinous deposit, the latter fact also accounting for the absence of friction murmurs. The diagnosis of pericarditis is not less difficult among older children, and the cases should be carefully examined every day if one would observe the modifications in the physical signs. A certain and early diagnosis is of great importance with reference to treatment, and hence with reference to the final issue of the case. Among the unfavorable complications of the disease may be mentioned adhesion together of the two layers of the pericardium, which

will paralyze the cardiac muscle, and, on account of the resulting stasis, will lead to extensive dropsy. The principal symptoms of this form of cardiac paralysis are small and frequent pulse, subnormal temperature, œdema of the cheeks, lids, and lower extremities, and the presence of a small quantity of albumen in the urine.

A. F. C.

III.—SURGERY.

Sanderson : Successful Operation for Imperforate Anus. (*The Lancet*, October 4, 1890.)

The child, a female, was normal in every respect except that the usual site of the anus was occupied by a faint dimple. The operation was done the next day after birth.

Pressure on the abdomen caused a bead of meconium to appear at the vaginal orifice, and a probe revealed an opening high up in the vagina communicating with the bowel. A silver probe suitably bent was passed into the bowel and cut down upon through the dimple.

The edges of the bowel opened were stitched to the edges of the skin. The wound was allowed to heal, and daily movements obtained by injections of olive oil. Later bougies were passed. The anal control is good, and the child is in good health at the age of sixteen months.

Chaumier : Adenoid Tumors of the Naso-Pharynx in Children. (*Le Concours Méd.*, March 22, 1890.)

These tumors are of frequent occurrence, especially between the ages of seven and eight years, but no period of life is free from them. At the age of eighteen or twenty they tend to disappear spontaneously. Scrofula plays no rôle in their production, and the question may be asked whether they are due to a micro-organism. Upon the latter subject no researches have as yet been made; all that can be said in regard to their etiology is that they may be hereditary. Of two hundred and thirty-two cases which have been seen by the author the ear was affected in thirty-one, and with twenty-four of these deafness had been noticed by their parents. With nine there was chronic otorrhœa, and with nine a catarrhal discharge, which was not of long duration. Notwithstanding the foregoing statistics, the author feels that all deafness in children may be associated with adenoid growths, and the same is true of most of the chronic catarrhs of childhood. Mouth-breathing is one of the most frequent symptoms of this condition, the mouth being open by day and by night.

The high-arched palate is another frequent symptom, increased size of the upper lip is less frequently seen. In seventy-five of the author's cases the tonsils were sufficiently large to require excision. In twenty-eight cases there were large adenoid granulations in the bucco-pharyngeal space. In sixteen there were enlarged cervical glands. Respiration was constantly interfered with from nasal obstruction, with hypersecretion of mucus. There are also three other forms of complications to which, in the opinion of the author, too little attention has heretofore been given, and these are laryngo-bronchial accidents, nocturnal terrors, and angina. With children who suffer with cough a certain number have paroxysms of suffocation, asthmatic in character, especially at night. Nocturnal terrors are the result of respiratory trouble during the hours of sleep. Angina, though very common, is frequently so mild as to escape the attention of parents. Adenoid tumors may be regarded as of grave significance, because they may lead to loss of hearing, arrested development of intelligence, and deaf-mutism. They may cause death by the propagation of purulent inflammation from the ear to the brain. They may also cause frequent attacks of bronchitis. Such tumors should therefore be sought for in all children who are mouth-breathers, in those who have catarrhal discharges from the ear, in those who are deaf, in those whose pronunciation is defective, in deaf-mutes, idiots, and backward children, in those who are subject to bronchitis and asthma, and in those who suffer from nightmare. Posterior rhinoscopy will reveal the presence of the tumors, and examination of the naso-pharynx with the finger will enable one to feel them. Of course rhinoscopy is impossible with very young children. The treatment consists in the destruction of the tumors with cutting forceps or adenotomes, or they may be scraped away with the finger or the curette. The nasal douche may also be used, especially if trouble with the Eustachian tubes coexists. It should be remembered that during the night after the first treatment there may be paroxysms of cough or suffocation. A. F. C.

Waxham, F. E.: The Surgical Treatment of Croup. (*Journ. Am. Med. Assoc.*, 1890, xv. 521.)

The writer thinks that it is certainly time to operate when the voice becomes whispering, when the cough becomes suppressed, when in addition the dyspnea becomes urgent, and the loud stridor heard both on inspiration and expiration, and when there is marked recession at the base of the sternum and above the clavicles, when all these symptoms are present and continuous, and not relieved by the use of emetics. He does

not advise and does not practise early operations. He recommends intubation in preference to tracheotomy at all ages, under all conditions, and under all circumstances.

He reports two hundred and eighty-five cases with one hundred recoveries, or thirty-five per cent. During the past two years, in those cases where the treatment has been noticed, the following results have been obtained. In ninety-nine cases where the bichloride of mercury was administered there were fifty recoveries, or fifty and five-tenths per cent. In twenty-six cases where it was not administered there were nine recoveries, or thirty-four and sixty-one-hundredths per cent.

Leonard, B. F.: A Case of Successful Supra-Pubic Cystotomy in a Child. A New Manceuvre for Bimanual Examination for Stone in the Bladder, (*Virg. Med. Month.*, 1890, xvii. 635.)

The patient was a boy, aged six years. Shortly after an attack of measles, two years ago, he began to have an irritable bladder, without any history of nephritic colic. This increased, and he complained of pain on the penis before and during urination, the pain being finally extremely severe. There was considerable rectal prolapse. Under chloroform the stone was easily found with a sound. Under the bimanual it was impossible to feel the stone, for the simple reason that, in the recumbent position, the stone receded beyond reach, the bladder being much distended from the fact that the stone acted as a ball-valve and occluded the urethra whenever contraction took place. The boy was raised to a vertical position, and the stone instantly gravitated between the opposing fingers, and its size and shape were easily determined. The supra-pubic operation was done, and the child made a good recovery. The stone consisted mainly of phosphate of lime and weighed thirty-nine grains.

McCarthy, J. F.: Necrosis of the Maxillary Bones after Measles. (*Med. and Surg. Rep.*, Phila., 1890, lxiii. 448.)

The boy was eight years old. Family history good. The necrosis was very extensive. On the seventh and eighth day of the measles all the teeth in the left upper jaw were removed. Fifty-two days after the beginning of the measles, the left superior maxillary was removed from the median line to the zygomatic fossa, including all the alveolar process and up to the infra-orbital foramen on the facial surface and to the palate bone on the internal surface, leaving only the orbital surface. The palate bone was left intact. Three weeks later the alveolar process of the left side of the lower jaw was removed, leaving

the last bicuspid, although removing a portion of the alveolar process surrounding it. Three months later the eye was straight, and there was no deformity of the face, except that, when attempting to laugh or to whistle, his lips would draw towards the left. The superior maxillary was reproduced and three teeth were making their appearance,—one incisor, one canine, and one bicuspid. In the lower jaw, all the old teeth that were removed are replaced by new ones; the old bicuspid still remaining. The most interesting feature of this case is the rapid destruction and separation of the parts, the almost complete reproduction of the parts and the absence of any marked deformity.

Ridlon, John: A Report of Sixty-two Cases of Hip-Disease. (*N. Y. Med. Jour.*, 1890, lii. 369.)

Very many of these patients that have had the short splint applied before muscular spasm and pain had subsided, and before deformity had been reduced, that have been allowed to walk around without high patten and crutches,—that is to say, those whose joints have only been partially immobilized, without being protected from the pressure of superincumbent weight and the concussion of walking,—present a moderate degree of adduction, absence of motion, and in a few cases slight flexion, and in one instance in-knee.

On the other hand, those patients that have worn the long splint until cured, that have remained in the horizontal position until all pain and muscular spasm had subsided, and had then used the patten and crutches, and had had the benefit of intelligent care and nursing, had been cured without flexion and other deformity than the shortening due to actual bone erosion and arrested growth, and they have shown motion in a very large proportion of cases, and in not a few has there been normal motion.

The absence of any traction force, either in the line of the shaft or the neck of the femur, does not seem to have increased the number of patients having abscesses or the number of abscesses in each case, nor to have increased the frequency of shortening or the amount of shortening in each case. No case has given any signs of perforation of the acetabulum by the head of the femur, and in only one has there been any indication of perforation by suppuration; and involuntary muscular spasm and pain arising therefrom are noticeable for their absence. In a word, those patients who have had no traction are found to be remarkably free from all those conditions which we have been taught can only be relieved by persistent and long-continued traction.

In conclusion, nothing appears to indicate that the principles upon which Mr. Thomas has based his teachings are in any way at fault, though in practice there is still somewhat to be desired.

Bauer, Louis: *A Study of the Nature and Causation of Inflammatory and Suppurative Bone and Joint-Diseases.* (N. W. *Lancet*, St. Paul, 1890, x. 344.)

1. Modern writers on the subject admit promiscuous accidents and injuries to the skeleton during childhood, but consider them harmless unless they find the constitution fully prepared with pathogenetic elements. 2. As long as the patient is free from pain, no measures are taken to intercept the growing trouble. 3. The physician is as helpless against the symptoms caused by assumed scrofulosis as by the symptoms of assumed tuberculosis. All he can do to improve the constitution is by surrounding the patient with hygienic and dietetic advantages. 4. In reference to the local affection, the same remedies are resorted to which modern surgery has introduced and demonstrated, by stubborn clinical facts, to be beneficial, effective, and even curative. 5. The benefits derived from the exclusively local and mechanical means suggest that only local diseases can thus be overcome. 6. When this tubercular affection is thus taken hold of, rest and position enforced, the troubles ameliorate at once,—become gradually repressed, and in a good percentage of cases full repair and recovery ensue. The logical inference suggests: (a) The strictly local origin of the disease which has yielded to exclusive local treatment. (b) If rest and position alone are so effective in the reconstruction of healthy structures, it seems to be very conclusive that motion constitutes a propelling factor in the advancement of the former disease. 7. It is held by the bacteriologists that the parasites must be transmitted by heredity, or acquired *per vias naturales*, or wounds. Before the bacillus can assert its specific mischief it must become a part and parcel of the constitution, and thus enjoy free admission to all parts of the body. As already stated, the bacillus is supposed to pre-exist before an injury is inflicted; then it rushes to the traumatized locality and commences its pathological devastations. This is in the train of prevailing opinion. 8. After the bacillus tuberculosis has acquired firm hold of the constitution and the local focus, and has succeeded in producing an unknown quantity of ptomaines, or toxine, a surgeon is put in requisition, and he excises the entire morbid structure, and the patient recovers. 9. The followers of Koch contend that the *locus minoris resistentiæ* was removed

and the patient recovered, but they lost sight of two things: (a) That the constitutional invasion of the bacillus remained unchanged; and (b) that for the old *locus minoris resistentiæ* a new one has been created by the operation. Notwithstanding that the patient recovered, the theory of constitutional causation is upheld in the face of contradictory facts. 10. Assuming a case of Pott's disease, in which the matter forming descends to the groin along the *psoas major*. The disease of the spine is, of course, tubercular. So is the pus of the consecutive abscess. By proper treatment in the recumbent position, the local disturbance is somewhat ameliorated, and the supply of pus to the reservoir lessened. Resorption diminishes the purulent collection. Fatty degeneration of the pus-cells prevails, and the once large mass shrinks to a cheesy remnant, which may be eventually squeezed out through the spontaneous softening of the integument. 11. If the patient was invaded by the tubercular bacillus; if the bacillus availed itself of a *locus minoris resistentiæ*; if this *locus minoris resistentiæ* was gradually obliterated by proper treatment; if the pus formed at the spine, together with the bacilli, escaped into new quarters, and failing to improve by the opportunity, the pus evaporates, the bacillus goes into hibernation, and the patient gradually gets well,—what becomes of the bacilli located in the original focus? What of the bacilli which remain in the constitution? What of the bacilli in the *psoas* abscess? 12. Has it been absolutely proven that microbes are not scavengers merely?

Edmund Owen: Cleft Palate. (*The Lancet*, December 6, 1890.)

Two boys were shown, aged respectively seven and nine and a half years, on whom the writer had operated a few weeks previously for closure of wide clefts of the hard and soft palates. He had operated in each case with the head hanging down over the end of the table.

The chief feature of the operation was this: that, after approximating the long lateral flaps of muco-periosteum, he had completed the relief of the tension by adopting Billroth's plan of detaching the hamular process. By this means the course of the tensor palati was shortened, and that muscle, together with the palato-pharyngeus, was slackened. Mr. Owen was not prepared to say how far the favorable results were influenced by the adoption of Billroth's suggestion. Mr. Morgan noticed that the uvula was not united at all in one case and not satisfactorily in the other. Was this attributable to the method of operation?

Mr. Owen replied that it was not beyond his experience to find the uvula give way even where the utmost care was taken to suture it.

Arbuthnot, Lane : Congenital Deformity of the Mouth. (*The Lancet*, December 6, 1890.)

The patient was a boy. There was a double hare-lip, and the premaxilla was unduly prominent. The lower lip presented two fistulous openings at the muco-cutaneous junction, one on each side of the median raphe, and each of these was found to terminate in a flask-shaped cul-de-sac.

From there glairy fluid exuded when food was taken.

Adams : Congenital Contraction of the Fingers. (*The Lancet*, December 13, 1890.)

The association of the affection with "hammertoe" was mentioned. The author reviewed its clinical history in three stages.

In the first stage the little finger only was involved; the second and third phalanges were flexed on the first, which was never flexed, and later became hyperextended. There was no evidence of any contracting force, either by tendon, fascia, or skin. The second and third phalanges simply dropped, evidently from some failure in the muscular powers of extension.

The second stage was essentially one of confirmed contraction of the little finger, which took place gradually if the malposition of the first stage was uncorrected. The finger could not be straightened by any moderate amount of force, and the skin on the palmar aspect appeared to be thin, short, and contracted. Spontaneous arrest took place in this stage in a large proportion of cases, with some deformity and impairment of function.

In the third stage, increase of the contraction occurred at a late period in a certain proportion of cases, from sixteen to twenty years old; all the fingers became involved, and there was evidence of fascial contraction of a peculiar kind, differing from that in Dupuytren's. There was some appearance of a central flat band of fascia, about three-eighths of an inch in width, running lengthwise along the first and second phalanges. The terminal fibres of the fascia inserted into the skin were involved in this band, and contributed to the skin contraction. The first phalanx was always backward or hyperextended. This period of increase seemed to occur more frequently in young ladies of a neurotic temperament. The etiology of this congenital finger-contraction was very obscure.

The failure of the power of extension in the first stage might be due to some failure or imperfect development of the lumbricales and interossei muscles. The hereditary character of this form of finger-contraction was well known. The treatment in the first stage was essentially preventive, the object being to prevent the dropped finger (always the little finger) falling into a state of confirmed contraction. A light retentive metal splint, or a piece of whalebone, worn inside the finger of a glove, at first day and night, and later during the night only for two or three years, was sufficient. In the second stage, that of confirmed contraction of the little finger, the object was to overcome the contraction and straighten the finger with full muscular power. The author adopted the plan of dividing the longitudinal bands of fascia, as well as the terminal branches passing towards the skin, before commencing the extension, which must be continued day and night for from three to sixth months by an instrument with rack-and-pinion movements. This was followed by a metal retentive splint. In the third stage, in which all the fingers were sometimes involved, the operative and mechanical treatment were essentially the same as in the second stage.

The author, in reply to the discussion, said that he believed in the neurotic origin of many of the cases, but he was ignorant of the extent to which development contributed to the deformity.

Pitts and Brook: Treatment of Intralaryngeal Stenosis by Intubation. (*The Lancet*, December 6, 1890.)

Messrs. Bernard Pitts and William Brook communicated a paper on the treatment of stenosis of the larynx following tracheotomy, made some remarks on the present position of intubation, and showed three cases. The authors state that the difficulty of breathing after tracheotomy was often due to want of confidence on the part of the patient, the passages being free; but in the cases they were bringing forward, the obstruction was organic and situated in the upper tracheal or lower laryngeal region. The first case, a boy aged three, had to wear his tracheotomy tube some time. Twice later, after closure of the opening had been followed by dyspnoea, fresh tracheotomy became necessary. MacEwen's catheters and intubation both proving unsatisfactory, thyrotomy was performed, and a rough cicatricial band was found stretching across the air-tube from below the cords in front to the posterior tracheal wall behind. Much relief followed; but later, again, a fourth tracheotomy became necessary, and this being followed with O'Dwyer's tubes, the larynx had still remained patent, and the boy made a good recovery, with perfect phonation.

The second case was that of a boy, aged nine, in whom stenosis following tracheotomy called for exploration, and this was followed by intubation.

The third case was a boy, aged three years and a quarter; tracheotomy was done for diphtheria. Later the air-tube was opened and a dense cicatricial tissue found, which was cleared away with scissors and forceps; then intubation was carried out every few days.

The fourth case occurred in a boy, aged nine, tracheotomy having been previously done. On exploration, a web with its aperture to the right of the median line was found extending from the cricoid to the back of the trachea; this was removed and intubation afterwards carried out.

When stenosis of the larynx is found, intubation should be resorted to, and if this fails to relieve, exploration should be done and the cicatricial tissue removed. Intubation should be resorted to again immediately after the operation, so as to prevent recontraction. Intubation was unsuitable in the cases of foreign bodies, active ulceration, new growths, pressure from goitre and post-pharyngeal abscess. It was indicated in scalds, in œdema of the larynx; in sudden spasm of the glottis, in cases where the trouble was likely to be short.

Statistics as to its usefulness were quoted, showing the results at the Victoria Hospital for Children, St. Thomas's Hospital, and the Great Ormond Street Hospital.

As to diphtheria, it had given some good results, though its trial for this affection had not been sufficiently extensive.

The paper concluded with a list of advantages and disadvantages as to its use in diphtheria.

In the discussion following, Mr. Shield said that he had seen two cases in which the tube had to be retained some months. In both of these cases, however, the patients made a perfect recovery without operation. This treatment of freely excising the cicatricial tissue and following it by intubation might be a help to old syphilitic adults who wore tracheotomy tubes.

Mr. Bruce Clark referred to a case in which tracheotomy had to be done three times, and after this the larynx was split and found full of granulation tissue. This was removed and chloride of zinc applied; later, intubation was done and the child made a good recovery.

Dr. Donkin referred to some of the results obtained at the Shadwell Hospital for Children. He favored intubation, and said that cases of acute membranous laryngitis with marked expiratory stridor needed tracheotomy rather than intubation.

Dr. Voelcker was not so hopeful as to the advantages of intubation over tracheotomy for diphtheria.

In the present year, at the Great Ormond Street Hospital, out of fifty cases of diphtheria eleven had been tracheotomized, with three recoveries, whereas eleven had been intubated, with only one recovery.

Mr. Hawely said that at the Victoria Hospital sixteen cases had been intubated, with seven recoveries and nine deaths.

Mr. Furney gave his experience, and had observed that relief was perfect at first, but the membrane was not so readily coughed up as through a tracheotomy tube.

Mr. Powell, among other cases, mentioned one in which intubation failed to relieve, and tracheotomy had to be done at once.

Dr. Sturges spoke of the use of intubation in various conditions. In diphtheria it had not been very satisfactory. Its great use was in such cases as those of infantile laryngeal spasm.

Mr. Pitts, in reply, said that in two hospitals there was sufficient evidence that intubation gave better results than tracheotomy.

Berry : Femora after Osteotomy. (*The Lancet*, December 27, 1890.)

Mr. James Berry exhibited two femoras after osteotomy that showed very perfect repair. They were taken from a boy, seven years old, that died of cerebral hemorrhage. Just three years before, MacEwen's operation for genua-valga was performed on both sides.

The chief interest of the specimens lay in the perfect repair which had taken place since the operation.

Externally the bones showed no traces whatever of the osteotomy, and it was impossible, from an examination of the external surface of the bones, to detect the exact place at which they had been cut.

Another point of interest lay in the high position of the scar in the bone. The osteotomy had been performed just above the condyles, but the scar was situated almost as high as the junction of the middle third of the bone.

The explanation offered was that, as the lower part of a femur grew more rapidly than the middle, the scar had gradually altered its relative position during the three years which intervened between the operation and death of the patient.

Hadden, H. B. : Transposition of Viscera in One of Twins. (*The Lancet*, November 29, 1890.)

Two years ago in a patient the author accidentally found that the heart and abdominal viscera were transposed. The patient

said that she was not left-handed, but that her twin sister was. In the sister there was no transposition of viscera.

These girls had a brother—one of twins—who was said to be left-handed.

In "Fowler's Dictionary of Practical Medicine," Mr. Bland Sutton says that there is no support to the theory that left-handedness occurs in the subjects of transposed viscera.

The case of these sisters lends some support to the view put forward by Mr. Sutton.

It would be interesting to hear from others if left-handedness had been found in association with transposed viscera, either in the individual or in other members of the same family.

The author has seen occasional instances in which the use of the left hand was clearly hereditary.

Money: Clubbing of Fingers and Toes. (*The Lancet*, December 27, 1890.)

Is venous congestion the chief cause of clubbing of the fingers, toes, nose, ear nodules, lower end of spinal cord, and the most distal extremities of the circulation? Text-books are silent on the relation between clubbing and cyanosis in congenital heart-disease.

A case is referred to. There was no trace of clubbing, and cyanosis of ten months' duration. In the case the absence of venous congestion is considered reasonable; and this absence may be the cause of the absence of clubbing.

Chronic and acute pleural effusions, purulent or serous, and chronic phthisis, must cause venous congestion.

Clubbing of the extremities is co-ordinate with congestion, œdema, and induration of liver, spleen, kidney, etc., the swelling to be proportional to the softness and looseness of the congested organ. Hence, the ease with which clubbing is caused in young infants whose tissues are so soft and loose.

In many cases of stenosis of the pulmonary artery the fingers have been noted to be clubbed.

Bolton: Urethral Calculus of Large Size in a Boy. (*The Lancet*, July 12, 1890.)

A healthy-looking boy came under the care of the writer, suffering from enuresis and painful spasm in the region of the bladder. There was also continuous priapism and great tenesmus at the anus.

A sound discovered a stone lodged in the urethra near the bladder. Three weeks later the stone had advanced into the scrotal portion of the urethra and had become securely fixed. Enuresis became complete and the bladder distended.

The child was anæsthetized with equal parts of ether and chloroform, and the stone cut down upon through the raphe of the scrotum, using a squeezing pressure forward, and with the aid of a probe the stone came away.

A catheter was passed into the bladder and the wound closed with a catgut ligature. The catheter, contrary to orders, was withdrawn, and the next day it was found that the urine came through the wound more than through the urethral orifice. The wound healed in one week. The calculus weighed forty-five grains, and was oblong in shape. The centre was very hard, evidently of urate formation. The surface was covered with a phosphatic layer.

Bolton: Bowel Obstruction Caused by a Pin. (*The Lancet*, November 1, 1890.)

The patient had swallowed a pin two days previously, but had made no complaint until the evening before. In the afternoon of the second day the abdomen was found much swollen and slightly tympanitic. Every attempt at stool caused great pain and proved abortive. Examination by the finger found the pin fixed crosswise in the bowel. The point had penetrated the posterior wall, and the head lay on the anterior wall, but at a higher level. It was removed by a forceps. No further trouble followed.

The case shows with what speed a pin can pass all the tortuosities and valves, etc., of the bowel without being arrested in its course.

Coupland and Gould: Drainage of Double Empyema. (*The Lancet*, December 20, 1890.)

The patient was seven years old. Her illness began five months before with symptoms suggestive of double pneumonia. The presence of fluid was ascertained one month later. Repeated aspirations were made, sometimes on one side and sometimes on both. Pus was always found.

On admission the child was greatly emaciated. There was dulness over both lungs, extending to different heights, but lower in front than behind.

There was respiratory recession in the lower interspaces on both sides. The left side was smaller than the right. Breathing was weak over the dull area, except at the angle of the left scapula, where it was stronger.

The temperature varied from 97° to 101°. On the right side, one inch of the eighth rib was removed, and about ten ounces of inodorous pus escaped. A large drainage-tube was inserted. Eight days after the left side was operated on and a portion of

the seventh rib in the axilla removed. About eighteen ounces of pus escaped on incising the pleura. A rubber drainage-tube was inserted. The child made a good recovery and left the hospital in three months. The child was shown in the following December. She was in excellent health. The heart's impulse was in the normal situation. Movements of chest fairly good. Auscultation and percussion normal.

Reference was made to a few recently-recorded cases of a similar kind, and it was pointed out that in children double empyema was by no means so fatal an affection as had been assumed, and that, if repeated aspiration failed, the surgeon should not hesitate to drain freely each pleural cavity, provided that an interval of some days be allowed to elapse between the two operations.

Hawkins: Drainage of Pulmonary Abscess. (*The Lancet*, December 20, 1890.)

The patient, a boy, fourteen years of age, had been ill three weeks, suffering from pain in the left side, cough, and shivering. On admission he had well-marked hectic fever. The sputum was extremely fetid, having the characteristic odor of necrosed lung tissue. It was variable in amount, sometimes none for hours, then with a severe attack of coughing two or three ounces of stinking pus would be evacuated.

The only physical signs were a three-inch space of slightly impaired resonance in the left axilla with enfeeblement of breath-sounds. Faint cavernous breathing was heard occasionally later. On one occasion he spat up nearly four ounces of pus. The cavity being thus presumably emptied, the spot was marked where the cavernous breathing (always faint) was best heard: allowing time for the cavity to refill, an aspirating needle was introduced at a point one inch below the spot marked, and pus was found two or two inches and a half from the skin.

An opening was then made and a three-inch drainage-tube put in.

Two days later a general empyema developed, which was treated by incision made as far away from the abscess opening as possible, and drainage.

Expectoration and cough ceased from the time of the operation. At the end of a fortnight improvement began and proceeded rapidly. Both drainage-tubes were removed in six weeks. In six weeks more he had gained decidedly in weight, his chest had fallen in well, and there was no sign or symptom of disease.

No tubercle bacilli, hydatid membrane, or hooklets were

found, and there was no history or evidence of the passage of a foreign body into the air-passages, so that it was probably an instance of the very rare termination of pneumonia in localized abscess.

Pott: The Operative Treatment of Chronic Hydrocephalus. (*Jahrb. f. Kinderh.*, xxxi. 1 and 2.)

An operation for chronic hydrocephalus presents no technically insuperable difficulties, but it is important to consider in what cases it is allowable, and what will be obtained by the operation in favorable cases. The results of operations which have heretofore been made are not encouraging. Incision and drainage of the hydrocephalus sac have given no better results than earlier methods. The propriety of such operations might therefore be questioned. Of course, not every case of chronic hydrocephalus is suitable for operation. Every intracranial effusion of fluid of moderate extent must be let alone, also those cases of congenital hydrocephalus in which a rudimentary development of the brain is suspected, all these cases being complicated also with spina bifida or other serious lesion. Those cases are to be taken into consideration in which, in spite of the hydrocephalus, the children are psychically and physically well developed, or at least were so until the enlargement of the cranium began. Such children should show a steady though slow deterioration as the result of cerebral irritation or pressure conditions. Any operative procedure will be the less dreaded in such cases when one realizes the gloomy prognosis without such a possible source of relief. Such children become weak-minded or idiotic. They do not learn to talk at all, or that which is learned is quickly lost. If the pressure conditions continue only a few cases are there which escape total blindness. In an advanced condition of hydrocephalus complicated movements of co-ordination are impossible; walking, standing, and sitting may be impossible. If such a child learns to walk, the gait is wavering and uncertain. Pareses, contractures, partial and general chronic spasms are ordinary occurrences. All these symptoms are more or less conditioned upon the accumulation of the ventricular fluid, and the increase of endocranial tension. The circulation in the cranial cavity is weakened by the pressure, is also retarded and may be stopped. Thence will arise functional disturbances, and then pathological changes in the brain substance. If the pressure is removed by arrest of the secretion and ossification of the cranium, restoration to a certain extent is possible. Atrophy of the brain is present with most of those who recover, and they remain idiots for life. In the case upon

which the author operated great improvement took place after each withdrawal of fluid. The comatose condition passed away, the pupils reacted to light, the pulse became fuller and stronger, the breathing regular, and the desire for nutriment returned. The entire condition of the patient was satisfactory until the appearance of pus-corpuscles in the cerebro-spinal fluid removed the hopes of success which had been raised. If suppuration could be avoided, the author thinks that incision and drainage are better treatment for such cases than any other method which has been proposed.

A. F. C.

Page : Spinal Caries : Pressure : Paraplegia. (*The Lancet*, December 6, 1890.)

The author reviews the reports of the operation of trephining the spine for the relief of symptoms of pressure in the course of tubercular disease and finds that nearly fifty per cent. were benefited. If unsuccessful cases could be published, or if late reports of published cases could be had, these statistics might be changed. The case of a young man of twenty is given. The trouble followed a fall five years before, in which he struck the upper part of the dorsal vertebræ. Two months afterwards he began to have pain. There developed spinal deformity, weakness in the legs, and, finally, inability to walk. There was incontinence of urine. The whole muscular system was marked. In the muscles of the legs there was distinct rigidity. Sensations of pain and touch in the legs were delayed and impaired. The knee-jerks were exaggerated and clonic. The epigastric, cremasteric, and abdominal reflexes were absent.

The operation consisted in the removal of the laminæ of the seventh and eighth dorsal vertebræ. The dura seemed normal and was not opened. Immediately to the right there was seen in the bone a focus of inflammation and softening. A probe introduced led into a sinus that extended to the bodies of the vertebræ,—a place impossible to reach without injury to the spinal cord. The wound was therefore closed.

The man recovered from the operation well, but no relief was afforded. The bladder-trouble was increased, otherwise no harm was done.

The author discusses the question whether the operation should have been done at all or not,—giving the reasons for and against. He comes to the conclusion that it was justifiable. No man could have foreseen the exact condition found on opening the special canal. The case is worthy of record on the ground, only, of showing what sort of difficulty the surgeon may have to encounter after opening the spinal canal.

There was no weakening of the spinal column,—the gap has been filled up with new bone. The deformity remains. At present the patient is in good health. There is no indication of active caries. With a Sayer's jacket on he is able to walk.

Edge, Fred.: A Case of Bifid, Imperforate Anus, with Deficiency of Rectum. (*The Lancet*, September 27, 1890.)

A male child, three days old, was brought to the hospital. The abdomen was distended. There was an anal depression, which was divided into two by a medium septum continuous in front with the raphe of the perineum. On compressing the abdomen the pelvic floor was caused to project rather freely. The rectum was dissected down upon, opened, and an attempt made to stretch the margins of the rectal opening to the edge of the perineal incision; but they could not be brought together, and were approximated by a few sutures. The child died on the tenth day.

The bifid condition of the anal depression or proctoderm is of interest. The author finds nothing in literature pointing to the possibility of the proctoderm ever being a double involution. It seems probable that the tendency to union, which causes the closure of the genital cleft and produces the raphe of the perineum, had been carried backward to the embryonic cells of the anal site, and thus produced the median septum.

Sutton: Operations in Infancy and Old Age. (*The Lancet*, November 22, 1890.)

There are numerous recorded instances where the recovery followed operations of considerable severity, but success is not the rule,—much depends on the individual. Maddin has amputated the thigh of a child aged three days. Dr. Warton has recently recorded the successful amputation of the leg in a patient eighty years old; Montennis, the case of a man who survived amputation of the thigh at seventy-five; Murdock, the excision of the elbow-joint at seventy-six, and the author's amputation of the wrist at ninety-two.

Four cases are thus reported in detail,—

1. Strangulated hernia in a boy aged twenty-eight days, with marked success.
2. Imperforate anus in a child a few days old,—successful.
3. Rectal cancer: colotomy in a patient aged eighty-one. Lived five months.
4. Fungating sebaceous cyst of scalp—large size—in a woman eighty-four,—recovery.

These cases illustrate the success that may attend the application of surgical measures to patients in the extremes of life.

Professor Humphrey has shown that this failure of vitality has been much exaggerated. The remote effect of shock has been minimized since the introduction of anæsthesia.

The author suggests that it would be interesting to follow the cases of operation in children attended with shock, with complete recovery, to ascertain length of life and whether any impairment of vital power occurred attributable to the remote effect of shock.

Taylor: The Removal of Foreign Bodies from the Nose. (*The Lancet*, November 8, 1890.)

The writer gives a method by which he was able to remove a foreign body from the nose of a child. The nozzle of an india-rubber bag full of air is inserted into the nostril which does not contain the foreign body. The nostril should be well closed by the nozzle. Any remaining chink may be closed with the left forefinger and thumb. In the case of a very young child the bag is squeezed while the child is crying, during which the nasal and oral cavities are shut off from one another. The air returns by the other nostril and forces out the foreign body.

If the patient is old enough to understand, he is made to take a sip of water, and during the act of swallowing the air is forcibly expressed from the bag. This method was described in the *Lancet* of November 3, 1888.

The writer considers the plan a valuable one, and one with which the profession is not sufficiently acquainted.

Heath: Caries of Lower Dorsal Spine: Rupture of Psoas Abscess into Pleural Cavity. (*The Lancet*, December 6, 1890.)

The opening of a spinal abscess into the pleura is an event of great rarity. Some surgeons teach that the abscess produced by caries of the spine never extends into the pleura.

The patient, a boy, aged seven, fell four months previously, striking on his back. On admission there was a slight prominence of the eleventh dorsal spinal process. The right iliac fossa was occupied by a fluctuating swelling. The right loin was bulged by a swelling, between which and that in the iliac fossa a sense of fluctuation was obtained. The abscess was aspirated in the loin and injected with an iodoform emulsion. The abscess having refilled, this was repeated a few days later. The temperature rising and remaining elevated, the abscess was incised and drained a week later. The wound apparently did well. There developed vomiting of food. On the fourth day after operation, chloroform was administered in order to

replace the drainage-tube. He was very drowsy, and at night the temperature was 103.8° . There was slight cough, and an examination of the chest revealed impairment of resonance and weak breathing on the right side.

Necropsy.—There was extensive destruction of the last two dorsal vertebræ. The remains of the body of the eleventh vertebra had sunk downward, thus tilting outward the spinal process.

Cheesy masses were found beneath the posterior and anterior common ligaments. On the left side the mass extended outward to the head of the twelfth rib, which was partially destroyed, but on the right it communicated with the psoas abscess. At the upper end it communicated with the pleura behind the internal arched ligament of the diaphragm by a rounded opening large enough to admit the tip of the little finger. The pleural cavity contained about two ounces of pus, and the collapsed lung was coated with a thin layer of inflammatory exudation, most abundant on its diaphragmatic surface; no tubercle could be detected in the lung. The liver was fatty and there was a caseous gland in the portal fissure. The other viscera were healthy.

The case illustrates a rare occurrence. It is interesting that no pulmonary symptoms developed until the day before death. The condition of the pleura and the opening by which the psoas abscess communicated with it suggested that the rupture had taken place some time prior to this date.

The question arises whether the tension in the abscess cavity following the injection of iodoform emulsion may not have been a factor in determining the event.

To prevent this, it may be advisable to repeat the aspiration in a few days if tension becomes great.

The specimen illustrated well the mechanism of compression of the cord in cases of caries of the spine.

Manley, T. H.: A Few Clinical Observations on Operation for Congenital Clefts in the Gums, Lips, and Palate, in Early Infancy. (*Journ. Am. Med. Asso.*, 1890, xiv. 918.)

His fundamental principles are: 1. To operate as soon as possible after birth, provided the infant is healthy. 2. To do a preliminary osteoclasis when the bony frame-work is involved. 3. Hemorrhage must be absolutely suppressed when possible. 4. Antiseptics must be applied with the utmost diligence, as on the latter we almost solely depend for primary union of the soft parts. 5. In preparing the margins for adjustment, it is of cardinal importance that not the

slightest morsel of tissue be sacrificed. 6. The patient should be seen once or twice a day, or oftener, during the first week,—in fact, until union of the superficial parts is solid and complete.

Wharton, R. H.: *The Treatment of Croup with Special Reference to Tracheotomy and Intubation of Larynx.* (*Med. News*, Phila., 1870, lvii. 567.)

When the case of croup is seen comparatively early, before the symptoms are so urgent as to require immediate operative interference, the air of the room is kept moistened with steam, and the patient is given internally this mixture every two hours:

R Carbonate of ammonium, 2 grains;
Syrup of senega, 10 minims;
Mucilage of acacia, 2 drachms. M.

The steam-atomizer is frequently used, in the receiver of which is the following solution:

R Sodium carbonate, 1 to 2½ drachms;
Glycerin, 2 ounces;
Water sufficient to make 4 ounces. M.

If there is reason to think that the case is one of diphtheritic croup, the patient is given, in addition, either calomel in small doses, bichloride of mercury, or any other drug which may be considered advisable.

If in spite of this treatment the symptoms of dyspnœa become more urgent, operative interference is indicated, bearing in mind the fact that an operation—either tracheotomy or intubation—is only a mechanical procedure to relieve the dyspnœa. Never introduce an intubation-tube without having at hand the instruments necessary to perform tracheotomy.

A number of cases, after either intubation or tracheotomy, develop recurrent obstruction, due to extension of the membrane to the bronchial tubes or to the development of a broncho-pneumonia, and in such cases further operative treatment is useless. These cases are characterized by dyspnœa, rapid respiration being the principal feature. I do not think that a larger number of cases can be saved by intubation than by tracheotomy; in my personal experience the larger proportion of recoveries has followed tracheotomy.

In conclusion, I would say that in intubation of the larynx we have added a valuable surgical procedure to our means of treating croup. I think it is especially to be recommended in the cases of rapidly-developing dyspnœa in which the obstruc-

tion is probably due to a slightly-developed diphtheritic membrane, to oedema of the larynx, or to catarrhal laryngitis. Intubation has the advantage of being a bloodless operation, and practically without pain, and for this reason the friends of the patient will often consent to intubation when they would refuse to have tracheotomy performed. The management of cases after intubation is comparatively easy, with the exception of the difficulty of nourishing the patient. In very young children, intubation should first be employed, unless some contra-indication exists.

Tracheotomy generally completely relieves the dyspnœa, and allows the surgeon to clear the trachea of membrane, and is therefore to be preferred in slowly-developing cases of dyspnœa, in which there is apt to be present a well-developed diphtheritic membrane in the larynx or trachea. If carefully performed, there is comparatively little risk in the operation itself. Patients after tracheotomy have little difficulty in taking a full supply of liquid nourishment, which certainly is most urgently indicated in an asthenic disease like diphtheria, and it is in this disease that the operation is most frequently called for.

Plummer, S. C., Jr.: A Report of a Case of Tracheotomy for the Extraction of a Foreign Body. (*Northwestern Lancet*, 1890, x. 380.)

The patient was a girl, four years old. While playing with some corn, she was suddenly seized with a severe paroxysm of coughing; became blue in the face, and, when the paroxysm ceased, had difficulty in breathing, which was accompanied by wheezing in the neck. Several times during the remainder of that day and the night which followed the paroxysms were repeated. The breathing was never free.

The next day the child was etherized and Dr. Spalding did a low tracheotomy. When the edges of the tracheal wound were retracted, the point of a grain of corn—i.e., the part by which it is attached to the ear—could be seen below the incision. With each expiration it would present itself at the wound, and with each inspiration would recede from sight. Attempts to extract the grain proved futile, as it would elude the grasp of the forceps. Finally, the tracheal wound being held open, a paroxysm of coughing was produced by this irritation, and the grain of corn was violently expelled through the wound. The superficial wound was closed by a few interrupted sutures of iron-dyed silk.

After the suturing, a little puffing in the neighborhood of the wound occurred, owing to emphysema of the subcutaneous connective tissue. The next morning this had spread some-

what, and that evening it had extended to the face. The eyelids were so puffed as to close both eyes completely, and a distinct crackling could be felt and heard by pressing on them. In spite of reopening the incision, the emphysema spread the next day to the chest and hands. However, after this the emphysema gradually subsided, so that by the end of a week it had entirely disappeared. The wound eventually healed and the child made a complete recovery.

Demarest, F. F. C.: A Normal Anus with the Rectum Ending in a Blind Pouch. (*Med. Rec.*, New York, 1890, xxxvii. 731.)

The patient, a boy, was normal with this exception. The writer dissected down to the rectal pouch, brought it down to the external sphincter, and attached it there by interrupted sutures. The boy made a good recovery.

Packard, J. H.: Traumatic Separation of the Lower Epiphysis of the Femur. (*Annals of Gynec. and Ped.*, Phila., 1890, iv. 111.) The patient was a boy, aged nine, who had his right leg caught in the wheel of a wagon behind which he was clinging. From the appearance of the anterior face of the limb, a hasty observer might have suspected a forward luxation of the knee; but upon examination the true nature of the lesion was at once apparent. At the lower and back part of the thigh there was a large wound, through which protruded the end of the shaft of the femur, bare of periosteum; the condyles were still partly in contact with the tibia, but the whole epiphysis was rotated, so that its articular face looked forward (upward as the boy lay on his back) and the upper cup-shaped surface backward. This was due to traction by the two heads of the gastrocnemius muscle. Reduction of the protruding mass was found to be impossible, and amputation was done.

Upon dissection it was found that the epiphysis had been almost cleanly separated; entirely so, but for a very small splinter detached from the end of the diaphysis at the inner side.

In this instance, as in the twenty-five other cases in which the cause of the lesion was the entanglement of the limb in a moving wheel, the mechanism would seem to be an over-extension of the knee; along with this there was probably some lateral stress, and a certain degree also of twisting of the leg upon the thigh. Thus the ossifying cartilage between the diaphysis and the epiphysis breaks away, and the latter is stripped or peeled off from the former.

Other forms of indirect violence have been known to produce this lesion by a mechanism apparently the same. Thus,

in two instances the leg was caught in a cable, and in seven in machinery; in five the detachment took place as the result of surgical procedures, as for the forcible correction of ankylosis or deformities; in three the patients fell while running, and in one a boy was precipitated from a height of eighty feet; in one the leg was caught between two beams, and in another it sank into a hole in the ground as far as the knee; finally, in one case a boy was playing leap-frog, and alighted on his feet with his feet widely separated.

Direct violence is said to have caused this injury in two cases by forcible contact with resisting bodies; in one by the fall of a mass of rope against the knee, and in one by the kick of a horse; in one the accident is described as a "colliery crush," and in four the little patients were run over by vehicles. Some of these cases would probably find a more appropriate place in the category of supra-condyloid fractures. In one case this lesion occurred during birth, by traction in the leg of a child. But as the child was dead, and putrefaction had already set in, the case cannot fairly be regarded as one of traumatic separation.

The gravity of this injury is shown by the fact that in twenty-eight of the cases amputation was performed. In twelve it was primary, in nine secondary, in five it was done at a very late period, and in two the time is not stated. Resection of the end of the shaft was resorted to in six cases, in four of which complete success ensued; in one the result was doubtful at the time the patient left the hospital, and in one it is not stated. Resection of the knee-joint was done in two cases, in both of which amputation was afterward performed. Reduction was accomplished in fourteen cases, successfully except in one, in which the patient died of purulent infection on the fifteenth day. One boy recovered with a stiff knee; two had good motion; of seven it is merely stated that they did well, or had useful limbs, while in two it is only stated that consolidation occurred.

In three cases no operation is recorded and the patients all died, and in nine cases no details were given.

Cheatham, W.: On Laryngeal Intubation. (*Cincinnati Lancet-Clinic*, 1890, lxiv. 639.)

The tube can be easily removed by pressing on the trachea, firmly, back and up with the thumb of the right hand, thus dislodging the tube, which must be caught by inserting the forefinger of the left hand in the patient's mouth and pulling the tube out, or holding it until a pair of forceps can be introduced with the right hand, thus catching the tube. I have

removed the tube in my later cases in this way. The tracheal rings of a child are very soft, and the tube can be easily pressed out.

I wish to place on record the results of my intubations: In my first fifteen cases I had one success,—enough to discourage one; in my second fifteen I had eight successes; and in my last fifteen, nine successes; or eighteen successes in forty-five cases, giving forty per cent. of recoveries.

Kiely, W. E.: Case of Invagination of the Bowel in a Child Fifteen Months Old. (*Cincinnati Lancet-Clinic*, 1891, lxx. 197.)

The child at supper had gorged itself with meat, fried cabbage, and several bananas. The symptoms began with a convulsion, which had subsided before the patient was seen by the physician. At this time the temperature was normal and the fontanelle was normal. The mother had administered a dose of castor oil. He prescribed some bromide.

Early the next morning, he found that the child had slept from 2 to 6 A.M. and had been quiet from 6 to 8 A.M. The bowels had not acted, except slightly, during the convulsion, before he was called. The temperature was 104.8°, and the child was in clonic convulsion; the abdomen was distended. The child died at 2 P.M.

On autopsy he found that the upper portion of the ascending colon was distended, the transverse colon was very much distended, and so was the descending colon, to within about an inch of the sigmoid flexure, where the bowel was so tightly twisted that every effort from above to force the contents of it was futile. There was no adhesion.

Hubbard, W. H.: A Case of Dry Gangrene in a Boy Two and a Half Years of Age. (*Med. Rec.*, New York, 1890, xxxviii. 12.)

It was a case of dry (senile) gangrene in a child two and a half years of age, followed by fever, which recurred in regular periods of six days, with a peculiar characteristic eruption. He made a good recovery.

Phillips: Defective Development of Thoracic and Abdominal Walls. (*The Lancet*, November 1, 1890.)

At a meeting of the Clinical Society of London, Dr. Sidney Phillips exhibited an infant, aged five weeks, with a protrusion of the intestine, absence of xiphoid cartilage, and partial protrusion of the heart with each systole.

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THE THORAX IN INFANCY.

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(Continued from March number.)

THE thorax of the infant forms the upper and smaller end of the egg-shaped body which we have already described the trunk as presenting. As we have pointed out, the puny shoulders of the infant alone make the chest very different from that of the adult; but, besides that, the whole shape of the thorax is very peculiar. The proportion of the dorsal region of the spinal column is pretty nearly the same throughout life, but the thorax itself varies greatly. To begin with the condition of things at birth, the thorax is very insignificant. In front the breast-bone is relatively much smaller than that of the adult male, but not very different from some very small breast-bones, which are occasionally met with in women. We shall consider it in detail later, but may mention that the lower part is but slightly developed. The borders of the ribs diverge relatively rapidly. This is perhaps due to the great breadth of the abdomen, which the thorax is straddling like a short-legged boy on a large horse. The sides of the thorax are not relatively so long as in the adult,

which is partly due (probably) to the lesser development of the lower ribs and partly to the very important characteristic of the infant's thorax, namely, that the top of the sternum is placed higher than in the adult. The top of the sternum in the latter is about on a level with the disk between the second and third dorsal vertebræ. The top of the sternum, according to Symington, is opposite, about the middle of the first dorsal vertebra in the new-born infant, and a frozen section by Rüdinger shows it rather below the middle of the first. In two white children, of ten months, we have found it in one nearly opposite the disk between the first and second dorsal vertebræ, and in the other a little lower, near the top of the second. In a black child of three years, whose proportions were rather strikingly infantile for her age, it was higher than on either, near the lower border of the first. In the three-year-old child, the subject for the work on "Frozen Sections," it was opposite the lower part of the second. In the median section of a boy about six years old, Symington found the top of the sternum a little below the level of the top of the second dorsal; he believes, however, that this was an individual peculiarity, as in several children of that age he found nearly the adult relations. From several observations on the living subject we are inclined to agree to this statement. Another most important peculiarity of the infantile and child's thorax is the want of breadth. In the adult throughout the thorax, from about the level of the second costal cartilage, or even a little higher, to the top of the diaphragm, the antero-posterior diameter of the interior of the thorax is to the transverse as one to two and a half or one to three, there being of course a certain amount of variation. At birth, on the other hand, it is as two to three. At three years, according to "Frozen Sections," it is as one to two, and in a child of from five to six (Symington) the depth is even relatively greater. The ribs bend much less backward than in the adult, and the back, as has been said, first becomes rounder and then flatter. At four or five years great progress has been made, and the infantile form of the thorax has wholly disappeared. Slight changes, however, probably go on for some years. It is well known that in the infant the ribs are more nearly horizontal than in adult life.

A striking feature of the young infant's chest is that the ribs form the sides of the chest and the sternum and cartilages the front. We now come to the more detailed description of the latter parts, which is of great importance for two reasons; first, on account of their influence on the type of respiration; and, secondly, because the costal cartilages are used as landmarks for the organs beneath them.

At birth the sternum is practically a strip of cartilage in which a varying number of bone-centres have been deposited. There is one for the manubrium and usually one or two for the second and third pieces, those for the latter being very frequently double. These, however, are mere thickenings of the cartilaginous strip, which is flexible and pliable in all directions. Towards the end of the first year these bone-centres have grown, and the sternum has gained a good deal in stability. New points have probably appeared, but still the sternum is essentially cartilaginous, the bone merely consisting of islands in a sea of gristle. At two years of age the manubrium and the second and third pieces are nearly ossified, but their shape is made by their cartilaginous borders. At three years we have twice seen the manubrium and second piece presenting in bone their real shape, while the third piece was still framed in cartilage. Sometimes, however, the process of ossification is more backward. The ossification of the lower part of the sternum is less advanced than the upper part. As to its relative size opinions differ. While it seems to us that it is usually small, we must admit that statistics do not confirm this view. Probably the individual variation is very great. The ribs being comparatively horizontal, the cartilages rise very little, and at the lower part of the chest in front they are nearly together, making narrow intercostal spaces, the seventh cartilage often meeting below the body of the sternum. In the dead body of a young child, especially if it be emaciated, it is striking to see how, after the cadaveric rigidity has passed away, the sternum and cartilages, forming the front of the chest, fall in at the point where they join the ribs.

We can here well take into consideration certain practical clinical points connected with the ossification of the sternum and the relative importance which this ossification exercises on

the heart and lungs according to the age. Cardiac disease in infancy and childhood has essentially characteristics of its own, wherein it differs from the same disease in the adult subject. One of these characteristics is directly dependent on the stage of ossification of the sternum,—namely, deformities of the thorax resulting from the continued pressure of the enlarged heart on the soft and pliant sternum and costal cartilages. These deformities do not merely take place in rachitic subjects, but depend upon the age at which the cardiac disease takes place; the deformity being more or less pronounced in inverse ratio to the age and in direct ratio to the time during which the cardiac disease has existed. The shape and extent of the displacement, with its corresponding deformity, is of course also dependent on the degree of ossification which has taken place in the sternum; the younger subject presenting a bulging of the whole front of the thorax corresponding to the cartilaginous condition of the whole sternum, which has been described above as existing during the first year and often also even up to the third year. As the child grows older the manubrium and second piece of the sternum become firm and offer more resistance to the intrathoracic cardiac pressure, while the third piece of the sternum still remaining in a semi-cartilaginous condition, we have the peculiar tilting up of the lower part of the sternum met with in children whose cardiac disease has not developed until their fourth, fifth, or sixth year. A case has just been under our care in the hospital where a child of seven, who at the age of five years had articular rheumatism with resulting cardiac complication, presented this displacement of the third piece of the sternum. No other sign of rachitis was detected in this case, but the child was markedly backward in her general development, and her heart was decidedly hypertrophied. It is then a peculiarly unfortunate period of growth for cardiac disease to occur, namely, that middle period of childhood when not only the sternum is still pliant enough to be misplaced, but when the heart from its activity of growth in this period requires a proportionately greater amount of intrathoracic space for the normal performance of its function than in adult life. We shall not here enter into the question of

the degree of injury done to the growing lung by these deformities of the infantile thorax, but shall merely draw attention to the probable interference with the normal uniform expansion, so necessary for the growing pulmonary tissue, and the consequent loss of the elasticity which plays so prominent a rôle in the final establishment of the equipoise which should exist in the perfected respiratory apparatus. A word now as to the movements of the ribs will be of interest before we discuss the movements of respiration as a whole. The movements of the adult ribs are very imperfectly explained in many of the treatises on anatomy, and in others the explanation is labored and complicated. A ligamentous preparation of the spine, with a small piece of each rib *in situ*, shows the following state of affairs: The first rib moves up and down on a single axis running through the head of the rib resting against the body of the vertebra and its tubercle on the transverse process. This movement is a perfectly simple one, the front of the rib moving up and down, and no other movement is possible. In the second rib the conditions are practically the same, but in the third there appears a new feature which is more developed farther down. It is that the tubercle of the rib no longer remains in place on the transverse process, but slides up and down on it, so that while the inner end of the axis remains stationary the outer end is raised (in inspiration), and consequently we have, in addition to the raising of the fore end of the rib, a swinging upward of its outward convexity, which may be referred to a rotation on an imaginary antero-posterior axis. Skipping now to the last rib, which has no tubercle and rests on no transverse process, we find that we can raise or depress it, move it forward or backward, and circumduct it, by carrying it from one of these positions to another. This is true in a less degree of the eleventh rib, and perhaps to some extent of the tenth. The raising of the front of the ribs not only increases the antero-posterior diameter of the chest, but by bringing the lateral convexity of each rib to a higher level, it also increases the transverse diameter: this is further increased by the rotation of the longer ribs on an antero-posterior axis. The freedom of the lowest ribs allows them to be pulled backward and downward by the muscles

of the back, thereby giving a firmer attachment to the diaphragm, and thus favoring its contraction, or they may be drawn inward by it or upward, following the other ribs. It is to be remembered that in such a preparation the movements are far more extensive than they can be in life, owing to the restraint exercised by the sternum and costal cartilages as well as by the soft parts. The influence of the sternum is especially important, as in the adult the body is in one piece and the amount of motion between it and the manubrium is probably not often great. An important feature in the mechanism of thoracic respiration is the rigidity of the thorax. In the infant at birth this rigidity is almost wholly absent, as it is found only in the ribs.

The sternum, as has already been said, is at this age practically a perfectly flexible strip of cartilage, for the small points of ossification in it only modify the softness of certain separate parts. The dorsal region of the spine is not fixed as a concavity, but can be bent freely backward. The motions of the ribs are, as we have satisfied ourselves from our observations on the dissected spine, practically the same as in the adult, but the effect of these motions is different. In the first place, as has been shown, the ribs are more nearly horizontal, and the thorax even after death is in what is called the inspiratory condition. The nearly horizontal first rib can hardly rise any higher unless the whole spine is bent backward. The ribs being straighter than in the adult, do not when raised increase the breadth of the chest to the same degree. The nature of the infantile respiratory movements is far from easy to analyze. Sometimes it seems abdominal and sometimes thoracic. The fact is, at first it is of a very indefinite type. The thorax seems to expand as it can. It is common to see its lower part drawn inward by the contraction of the diaphragm.

An examination of the living subject during the different periods of infancy has been made by us with considerable interest, so closely do the results follow in their conclusions what we have already been led to expect from our anatomical and physiological studies. At birth no especial part of the respiratory apparatus has attained a sufficient development to in-

sure its continuous and equable action, and we therefore found, as would be expected, irregular respiratory movements and no decided type of respiration. As the infants, both male and female, however, grew older, and a more equable respiratory mechanism became established, it was found that as a rule in the early months of life the type of respiration was abdominal. A sufficient number of observations, however, have not yet been made to warrant us in giving any especial age at which the type of respiration in the two sexes separates and the female infant assumes the thoracic type of respiration. But if the breathing of the infant is essentially irregular in type, it is admirably adapted to the wants of that age. The elastic thorax can give before pressure and expand in almost any direction. The flexible sternum submits to liberties which no adult breast-bone would endure. One-half of the chest may be compressed and the other go on independently.

The facts concerning the shape of the infant's thorax, which we have already pointed out,—namely, that the top of the sternum is higher, reckoning from the spine, that the ribs are more nearly horizontal, and that (probably) the lower part of the sternum is relatively less developed than in the adult,—necessarily imply certain peculiarities in the relations of the internal parts. There is, however, a difficulty in understanding and stating these peculiarities, which, though sufficiently evident, is often overlooked, and which may occasion both obscurity and confusion. It is the want of a generally accepted standard by which to judge of the position of these parts.

Is it to be the spine or the front of the chest? We cannot use both indiscriminately, for their relations differ with the age. It is clear that the spine is the more fixed point of the two and therefore the better scientifically, but that, for most clinical purposes, it is desirable to refer to the front of the body. We will first speak of the position of the diaphragm. This, as is well known, rises highest on the right over the summit of the liver, is a little lower on the left, and lower still at its tendinous centre in the middle line. It is generally stated that the diaphragm is higher in the child than in the adult. Our observations, partly original, partly on the frozen sections of other writers, give the following results: In the infant the

diaphragm appears to be opposite the disk between the eighth and ninth dorsal vertebræ. In one child of three years it was opposite the lower part of the eighth vertebra, and in another child it was at the disk between the eighth and ninth. Both the children were girls. In a boy of five it was opposite the middle of the ninth, and in one of six opposite a point in the lower half of the ninth; in a girl of six between the ninth and tenth, and in one of thirteen opposite the lower border of the ninth. In the adult it may be as low as the middle of the tenth; more often probably at the disk above it or the lower part of the ninth, and occasionally higher. In Rüdinger's median section of a woman in the last months of pregnancy it is as high as the lower border of the eighth. We may conclude that, while there is some variation, on the whole the central point of the diaphragm is in the infant higher in relation to the spine than later in life, and that it gradually becomes lower. How high the diaphragm rises laterally is hard to say, for it is a point very difficult to observe. According to Kölliker, in the fœtus at term, on the right it reaches the level of the anterior end of the fourth cartilage, and on the left that of the fourth intercostal space. Henke adds to this quotation that certainly after respiration has begun it will never be so high again.

There is a point concerning the attachment of the diaphragm to the front of the chest which will most conveniently be considered a little later, so, keeping this in reserve, we pass on to a consideration of the thoracic organs. The lungs are at birth relatively small, while the heart is relatively large, occupying in its largest part almost the whole distance from the spine to the sternum, with the thymus lying above and to some extent before it. The thymus thus overlapping the heart can be considered first. Most developed in the first two years of life, it persists longer than has till recently been taught. During its greatest development it is in the neck as well as in the thorax, extending perhaps a finger's breadth above the sternum, which, be it remembered, is no small part of the surface of a child's neck. The thymus extends down the anterior mediastinum, lying on the pericardium in two long lobes on either side of the median line. The extent of these lobes is very variable,

and the two are not usually symmetrical. We have seen them even in an infant so developed that the longer nearly reached the lower end of the sternum, but it is very uncommon for it to reach the diaphragm. These prolongations become thinner as they descend. The thymus is a thick mass behind the first piece of the sternum, where it rests on the top of the heart against the great vessels concealing the innominate veins, more or less of the superior vena cava, and the arch of the aorta, and extending back to the trachea. Lower down it extends on either side into the angle between the pericardium and the lungs or, rather, pleuræ. Excepting for the front view, obtained by removing the sternum, the size and relation of the thymus are best shown by frozen sections. One of a child of three years or less, at the Harvard Medical School, gives a most remarkable view of it. The section in question runs nearly horizontally from the top of the fourth dorsal vertebra to just above the junction of the second costal cartilage with the sternum. The cavity of the thorax seems to be divided into three parts, one on either side of the lungs and a median one occupied by the thymus, the transverse part of the arch of the aorta, with the superior vena cava on its right, and the trachea and œsophagus behind. The area occupied by the thymus is very nearly equal to that of the left lung. The thymus reaches backward on the left of the aorta behind the level of the front of the spinal column. There is also what seems to be a piece of the same between the vena cava and the trachea. On the upper surface of the same section, at about the level of the sterno-clavicular articulations, it is in front of both innominate veins and behind the right one. The lungs are prevented from approaching each other so nearly behind the manubrium as they do in the adult.

The section of the child, just described, shows that behind the manubrium there is much more of the thymus to the left than to the right of the median line, and its dulness or percussion must have been evident at the left of the sternum. Below it merges into the cardiac dulness and no distinction between them is possible.

The theoretical results of enlargement of the thymus are very serious. Resting on the anterior and weaker ventricle,

which is prolonged upward into the pulmonary artery, it may interfere with the pulmonary supply of blood, and by compressing the innominate veins and the superior vena cava, it may interrupt the return of venous blood to the lungs. Whether or not it may compress the thoracic duct is doubtful, but it certainly may press on the trachea.

Allan Burns, in his classical work on "The Surgical Anatomy of the Head and Neck," writes as follows: "This gland is apt to enlarge in those of a peculiar habit, and its position is such that, whenever it begins to swell, it occasions most serious uneasiness. On the front the tumor is prevented by the sternum from protruding outwardly. Above the sternum the fascia and muscles repress its growth; as it enlarges, therefore, it must press backward on the important parts which are between it and the spine. No wonder, then, that the patient should, in the end, die from suffocation and starvation. Even what food passes into the stomach fails to nourish the body properly. The pressure of the tumor on the subclavian vein interrupts the entrance of the chyle into the heart, and thence the mesenteric glands are, in such cases, generally found enlarged and obstructed."

The thymus is said often to persist for several years after puberty, but observations are not numerous. It seems to disappear from the neck and from the front of the heart and to remain longest behind the first piece of the sternum.

The most striking peculiarity of the infant's heart is that it is less covered by the lungs than in adult life. Together with the thymus it forms a, so to speak, solid mass from the posterior mediastinum to the sternum, pushing the lungs far apart. It is to be noticed, however, that the pleural cavities extend as far forward as in the adult. At what age the lungs reach their full expansion forward is not clear. It would appear that it is not before five or six years, and probably still later. As the chest expands laterally, the lungs of course increase, and the relative greater size of the heart to the lungs in the infant depends essentially on the size of the lungs.

The relations of the heart to the chest walls are curious in the infant, for these anterior walls are, as already stated, high in relation to the spine, yet the heart itself is high in relation

to the walls. At least the upper part of it is so. With regard to the apex and the lower border the matter is less certain. We have found the origin of the pulmonary artery at ten months near the top of the first intercostal space and at the same age at the level of the second costal cartilage. At three years we have found it near the lower border of the first space and near the lower edge of the second cartilage and at about the lower part of the second space. On the whole, considering the great variations in the adult, as recorded by Gibson and others, it is doubtful if there is any essential difference in this respect. If we say that in the infant it is rather higher than later, we have said about all that is justifiable.

It is generally held that in the first year of life the long axis of the heart is more nearly horizontal than later. The apex is thought by many to be higher. We are inclined to think that this is true in the first year or so, but somewhat later it may be found in the adult position, or, in cases where the lower part of the sternum is backward in development and the cartilage crowded together, it may be in a lower space than normal. It is not unlikely that a subsequent change in these portions of the walls would correct this. Thus, if in the early condition the apex were at the sixth intercostal space, a lengthening out of the lower end of the sternum might cause such a descent of the ribs as would bring it into the fifth space.

We now come to the insertion of the front of the diaphragm. In the infant it appears as if there were a lower insertion of the diaphragm to the sternum and the seventh costal cartilages than in the adult. Usually the line runs from one costal arch to the other, somewhat above the apex of the ensiform cartilage, leaving, therefore, a space on either side of the latter where the interior of the thorax is against the abdominal walls. It is remarkable how vague and various are the statements in anatomies on this point in the adult. The sternal origin of the diaphragm is said in some to arise from the ensiform near its base, and in others near its apex. Undoubtedly there is ground for both assertions. In the two well-known median frozen sections of the body by Braune it arises

in the male at the apex of the ensiform, and in the female near its base. We hesitate, therefore, to assert that there is any difference in the points of attachment in the infant, but the effect is different none the less. Owing perhaps to the greater flexibility of the body and to the less firm attachment of the internal parts one to another, it certainly seems that at least after death the thoracic cavity is more accessible at the sides of the ensiform than it is in the adult.

(To be continued.)

ON OVERPRESSURE IN ELEMENTARY EDUCATION.*

BY THOMAS MORE MADDEN, M.D., F.R.C.S.E.,

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GENTLEMEN,—I am indebted to your Council for an intimation of their wish that I should address some observations to their Congress on a subject which has long engaged my attention, and which I think is of no less importance to the scholastic than to the medical profession and to the public. I refer, namely, to the effect of cerebral overpressure, as applied to young children, and to the neglect of sufficient attention either to the individual mental receptivity of pupils or to their physical condition, which, I think, are now apparent in our school system in these countries. That invitation I have felt it my duty to comply with, inasmuch as it is only by the co-operation of your calling that medical men can hope to secure a denunciation of the evils, mental, moral, and physical, which, as I contend, are consequent on the premature or undue educational over-stimulation which is now so prevalent. With the morbid effects thus produced the physician has to reckon; with their causes and prevention it is, to a large extent, the province of the school-master to deal. The

* Address before the Congress of National Teachers, Dublin, April, 1891.

latter, though commonly held responsible for the disastrous results of misapplied education, is, I think, probably in this matter more sinned against than sinning. At the present time there is not only a general tendency to commence school-training at too early a period of child-life, but also an insistence on a uniform educational standard or classification in schools for all children of a similar age, without sufficient consideration to the individual mental and physical capacity or fitness of each child so classified.

This attempt at an obviously impossible uniformity is, in our national schools, further fostered by the very ill-advised system of subsidizing the teachers in these schools, known as payment by results. Such a method of remuneration offers a direct incentive, and an unfair temptation, to a most ill-paid class of public servants, to secure as best they may, and often I fear at the cost of injurious consequences to many of the pupils, from whom they must produce by those "results" some increase to their too scanty salary. Such attempts to force the immature mental faculties of young children of unequal mental capacity into an equality of development by an educational course, which, I venture to think, is greatly out of proportion to the probable future requirements of a large proportion of those educated in our national schools, must in many instances eventuate in failure to the teacher.

Moreover, in quite as many cases, it must be mentally and physically injurious to the children subjected to this system, which appears to me strangely at variance with the dictates of common sense, as well as with the lessons of experience. The fallacy of that system was very clearly shown, nearly sixty years ago, by an eminent medical writer, Dr. S. Johnson, from one of whose works I may here cite a few words that are applicable to this question. "He who cultivates the soil under his foot has generally a fair recompense for his labor; and at all events, he is not upbraided for the failure of his harvests. But he who cultivates the brains of pupils, male or female, has often a most ungrateful task to perform. To hope for a good crop of science or literature from some intellects is about the same as to expect olives to thrive on the craggy summit of Ben-Nevis, or the pineapple to expand amid the glaciers of

Grindelwald. Yet from these sterile regions of mind the hapless pedagogue is expected to turn out Duttons, Lockes, and Newtons with as much facility as a gardener raises broccoli or cauliflowers from a rich alluvial ground. It is in vain to urge in excuse that '*Non es aliquovia liquo fit uncurius.*'" Under such circumstances, payments by results for educational progress is manifestly unfair, both to the teacher and pupil. On the latter, the results obtained by overpressure are too frequently manifest in grave and irreparable injury to mind and body. What these consequences of misdirected education may be I shall endeavor to point out for your warning, and in so doing must reiterate some observations that may perhaps be found serviceable to those intrusted with the onerous duties of national education in the prevention of evils consequent of mental overpressure in childhood.

The respective claims of physical and mental training or education in school-life, and the consequences equally ascribable to the neglect or to the over-cultivation of either, are questions of no less social than medical interest. Until comparatively recently the term education was restricted to mental training, and even yet we have only imperfectly grasped the importance of sufficient attention to that development of the physical powers which should be regarded as an essential element in any well-devised scheme of national education. The evils connected with our modern educational methods present themselves under two distinct aspects.

On the one hand, the children of the poor are, at an absurdly early age (in England, compulsorily by law, and in this country by the national board system of education), subjected to an extent of mental training entirely disproportioned to the capacity of very young children, the brain-work being, to some extent at least, produced at the expense of the physical powers, to the development of which, as well as, above all, to the cultivation of the moral faculties, the first eight or ten years of child-life should be mainly devoted.

Secondly. On the other hand, in a large proportion of cases, the offspring of those of better social position are educated on directly opposite principles, as far as the relative importance given to mental and bodily training is concerned,

and with results no less injurious in public and other schools, where the physical powers are unduly cultivated, often to the detriment of the cerebral and moral faculties. The latter error, however, is one the consequences of which it would be beyond the scope of this address to consider, and is, moreover, of lesser public importance, inasmuch as its effects are confined to what may here be regarded as a comparatively limited class, while the former affects the great mass of the rising population, and affords some explanation of the deterioration now observable in the physique, if not of the morals, of the growing generation, who certainly contrast unfavorably with the more robust, if mentally less-cultured race, of the pre-educational period.

In this connection I may again repeat—as long as fallacies prevail respecting matters of such vital moment as that under consideration, forgotten or ignored truths, however trite, must be reiterated—that during the first eight or ten years of existence the amount of mental cultivation which a child's brain is capable of receiving with permanent advantage is very much less than is commonly believed. No greater physiological mistake is possible than that of attempting any considerable degree of such culture until the sufficient development of the physical stamina and moral faculties is accomplished. The organ of the mind is as much a part of the body as the hand, and ere either can function properly, its vital force must be fostered, developed, and maintained by nutrition and by suitable exercise.

A large number of those who come within the provisions of the national system of education are semi-starved children of the poorer class, who, when thus debilitated by privation, are necessarily as much incapacitated for any mental strain as for the accomplishment of any herculean feat of physical strength, it being not less inhuman, injudicious, and impolitic to expect the former than it would be the latter from those so circumstanced. If, therefore, the state, for reasons of public policy, desires that such children shall be subjected to school-work of any kind from their earliest years, it should certainly afford the means by which this may be least injuriously and most effectually carried out,—by providing food and physical train-

ing, as well as mental education, for every pauper child attending an elementary school.

Up to the present time these principles are practically ignored by those who rule the publicly-supported educational system of this country, and hence, as before observed, a large portion of those earliest years of life, which should be primarily devoted to physical and moral training, is now commonly given up to the development of the mental powers, children, while still mere infants, being compelled to attend some school, where, not by any fault of the national teachers, male or female, who in the great majority of instances, and more especially the latter, are as kind and considerate as they can possibly be, but as a result of the system, which they have to carry out in striving to impart at too early an age, or to pupils who may be mentally unfit for such instruction, even the apparently simplest rudiments of education, the immature brain of young children is liable to be forced into abnormal and disastrous activity. Under these circumstances, it is not to be wondered at that young children, on their return home, probably jaded in mind and body, to prepare for next day's task, should be too often thereby incapacitated for the enjoyment of that physical exercise which is essential for their bodily development and health, or for the still more important elementary training of the affections and moral faculties, and instilment of religious principles, which are better acquirable from home teachings than from any school system. We are all, of course, agreed as to the duty of properly educating the rising generation so as to fit them mentally and bodily for the increasing requirements and competition of modern life. But as to the extent to which the former should be carried and the latter neglected in early childhood there is, unfortunately, a great discrepancy between the rulers of the Education Department and the views of those who have to deal, in disease, with the consequences of the violation of the laws of nature. Among the results of overpressure, especially in elementary and infant schools, are the protean forms of brain-diseases, such as cerebritis and meningitis, as well as headache, sleeplessness, neuroses of every kind, and other evidences of cerebro-nervous disorders. On no other ground can

the increasing prevalence of these affections in early youth be accounted for, or explained, than by ascribing them to the new factors, "brain-excitement" and "overpressure," which are now too commonly disastrously associated with the process of misdirected, premature education, and neglected physical training. Hence, as long as little children are thus frequently forced into disease, it is, I think, the duty of every physician who has seen so many cases of preventable suffering directly traceable to mental overpressure during childhood, and often eventuating in the most painful of deaths,—namely, those from meningitis,—as I have witnessed during my nearly twenty years' experience in the Children's Hospital and elsewhere, to raise his voice against such an abuse of so-called education. That protest may not reach the ears of those who rule our national education, or, even if it should perchance penetrate into the inner sanctuary of that system, may very possibly be there complacently ignored; nevertheless, I shall remain well content, indeed, if I can presume to hope that the foregoing observations may induce at least some of you gentlemen, on whom the responsible and ill-remunerated duties of national teachers devolve, to sacrifice your own advantage to that of your pupils, by disregarding in the case of elementary instruction the unfair temptation offered by the system of payment by results, and to allow the minds of the younger children committed to your charge to lie fallow, or nearly so, if need be, until sufficiently matured by nature for instruction, rather than seek better educational results, procured by, and at the risk of, evils so real and so grave as those to which I have ventured briefly to ask your earnest consideration.

PEDIATRIC REPORT OF THE TENTH INTERNATIONAL MEDICAL CONGRESS, BERLIN, AUGUST, 1890.

BY AUGUST CAILLÉ, M.D.,

Chairman of Pediatric Section New York Academy of Medicine.

THE organization meeting of the Pediatric Section was held August 4, 1890, in one of the section-rooms of the Exposition Building in Berlin, under the chairmanship of Dr. Henoeh, of Berlin, and with Dr. Baginsky, of Berlin, as secretary.

The Section, after its organization, listened to a short presidential address, which was mainly one of welcome to the members and delegates, and thereupon elected the following honorary chairmen: Dr. A. Jacobi, New York; Dr. Rauchfuss, St. Petersburg; Dr. Bouchut, of Paris; and the following acting secretaries: Dr. Loewy, of Berlin; Dr. Gillet, of Paris. After the introduction of the foreign delegates the meeting adjourned.

The following delegates of the American Pediatric Society were present: A. Jacobi, J. O'Dwyer, W. P. Northrup, A. Seibert, and A. Caillé.

The first order of business was a discussion on antipyretic therapeutics in infancy, opened by Dr. Ashby, of Manchester, as referee. The speaker gave preference to hydrotherapy over antipyretic chemicals, the latter to be employed only on good indication. In the general discussion which followed, the majority of colleagues were of the same opinion as the speaker.

Dr. Gillet, of Paris, reported on pancreatic digestion in healthy and sick infants. He had removed the pancreas from dead children under antiseptic precautions, and tested its power of converting starch. In very young children the pancreatic extract did not convert starch into sugar.

Heubner, of Leipsic, referred to his own experiments, according to which a decoction of salep suffered no transformation into sugar in the stomachs of infants below the

age of three months, as ascertained by the aid of the stomach-tube.

Dr. Seibert, of New York, and Dr. Escherich, of Gratz, presented their milk-sterilizing apparatus. Seibert's apparatus is constructed on the Soxhlet's principle of sterilizing the milk-food in small nursing-bottles. The bottles come in sets of eight, are of different sizes, and increasing capacity according to the weight of the child. The bottles are graduated, and accompanying the apparatus is a chart or table of calculations as to food quantity and mixture. This table is calculated for healthy children; due allowance must be made in case of sick children.

Dr. Escherich's new sterilizer is a tin can, with a faucet at the bottom, and a lid which is made air-tight and secure by means of a clamp; this lid or cover has a perforation, closed with a plug of cotton. The can and its contents are sterilized in the usual way in boiling water. This apparatus, with one graduated nursing-bottle, completes the nursing-outfit.

In the general discussion following the demonstration of both apparatuses, Dr. Heubner remarked that he preferred Soxhlet's plan of sterilizing in small bottles. In Leipzig, milk can be obtained from the apothecary shops at one and a quarter cents per bottle.

Dr. Soltmann, of Breslau, believes Escherich's apparatus to be valuable in institutions.

Dr. Seibert prefers Soxhlet's principle for the working-class; it enables the poor in our large cities to carry a few bottles of milk food in a lunch-basket, and thus to properly feed the children on holidays during an outing.

Dr. Heubner, of Leipzig, reported on stomach indigestion in infants. The stomach-tube has been used for diagnostic purposes in infants since 1887. Heretofore we have known that in children the stomach contents are carried to the bowel in from one and a half to two hours. During the period of digestion the acidity of the stomach increases. Pepsin is found in the stomach soon after birth, and hydrochloric acid is usually absent. Heubner examined the stomachs of normal children according to Cohn and Mehring's method, with the following result: In twenty-three cases, volatile acids were

found five times; lactic acid was found twenty times in twenty-four cases, and when not found the children had not been fed on milk; its quantity did not increase as digestion progressed. Free hydrochloric acid was found six times in twenty-six cases between one and a half and three hours after feeding. In milk-fed children the free hydrochloric acid becomes fixed, and it is rarely possible to detect it by reagents. Thus there was no congo reaction when one hundred per cent. of milk was mixed with three-tenths per cent. of hydrochloric acid, and on further inquiry it was found that hydrochloric acid combines with caseine.

Diphtheria: its prevention and treatment, received due consideration.

Dr. Löffler, of Greifswald, opened the discussion on prevention of diphtheria before the Section on Hygiene. He looks upon the Klebs-Löffler bacillus (1883) as the causative factor in diphtheritic infection. Diphtheria patients should be isolated in a room containing naught but the necessary furniture. All articles having been in contact with a case of diphtheria should be exposed to hot steam and sterilized. The germ of diphtheria may live a long time in the tissues; thus children should not enter school until four weeks after an attack of diphtheria. Cases are reported in which the bacillus was found to be present after sixteen weeks. Löffler denies the identity of animal and human diphtheria, and does not agree with those who hold that a healthy mucous membrane is an obstacle to diphtheritic invasion, but he recommends prophylactic gargles during an epidemic of disease. Conditions of climate and of the weather have little known influence as to the spread of the disease, which is undoubtedly most prevalent in over-populated, filthy, and damp localities. The diphtheria bacillus develops in milk and at a low temperature. To disinfect a room, Löffler advises scrubbing the floor with one to one thousand mercuric bichloride; the walls are to be rubbed down with bread-crumbs.

Dr. Roux, of Paris, held similar views.

Dr. Caillé, of New York, advocated personal prophylaxis in diphtheria before the Section on Children's Diseases, with the following *résumé*:

1. In the present state of our knowledge the possibility of preventing diphtheritic sepsis cannot be denied.

2. As one of the means of securing this end the daily inspection of school children is necessary.

3. The municipal control of diphtheria in large cities is inadequate, and methods of personal prophylaxis are more apt to prevent infection.

4. A daily prolonged toilet of the naso-pharynx by means of non-irritating antiseptic solutions is a trustworthy method of prevention in the absence of filthy carious teeth and enlarged and inflamed tonsils.

5. The naso-pharyngeal toilet is indicated as a prophylactic measure for all who are exposed to diphtheritic infection, and also in every case of chronic naso-pharyngeal catarrh, pertussis, scarlatina, and measles.

The above views are the direct results of some experiments in preventing diphtheritic infection which were reported to the New York Academy of Medicine in 1888.

Dr. A. Jacobi, of New York, presented before the Section on Internal Medicine an elaborate report on the treatment of diphtheria, as practised in the United States. The proper indication and administration of mercuric bichloride, the irrigation of the naso-pharynx, and well-timed stimulation, especially by means of large doses of whiskey, formed the basis of his lecture, which was listened to with great interest by a large gathering of colleagues.

Intubation of the larynx was discussed in a joint meeting of the pediatric and laryngological sections.

Dr. O'Dwyer, of New York, opened the discussion, as referee, on the subject.

After demonstrating his instruments, and also a number of faulty and dangerous ones not made according to his directions, he reported his personal experience with intubation, and gave a statistical account of the results of such operators whose experience extended over at least one hundred cases.

At the close of his report he was enthusiastically applauded by a large and appreciative audience of his colleagues.

Dr. Ranke, of Munich, continued the discussion as co-referee. He remarked that in Germany, Austria, and

Switzerland, four hundred and thirteen cases of intubation had been reported, with thirty-four per cent. of recoveries. A recent collective investigation showed thirty-eight per cent. of recoveries after tracheotomy. The frequency of tubular and fibrinous pneumonia is about the same in both operations. Pressure necrosis was frequently observed in younger children. In summing up, he stated that intubation was destined to take the place of tracheotomy in many, but not in all cases, and that Dr. O'Dwyer's method would never disappear from the minutes.

The discussion was continued by Dr. Bouchut, of Paris, the original but unsuccessful inventor of tubage of the larynx. He demonstrated his tubes, which were found to be shorter and wider than O'Dwyer's, and gave an interesting account of his early experiments.

Dr. Northrup, of New York, presented an analysis of three hundred and fifty cases of croup treated by intubation at the New York Infant Asylum. He expressed it as his opinion, based upon numerous autopsies, that the danger of "schluck pneumonie" after intubation was small. In seventy-two cases he had found descending croup.

Dr. Stoerck, of Vienna, referred to his own experiments in tubage of the larynx, made in 1848. He had lost all interest in the subject until he heard of O'Dwyer's method and success.

Dr. Casselberry, of Chicago, reported that he removed the tube for the purpose of feeding the patient.

Dr. Manassi, of Rome, favors intubation because nasal respiration is not interfered with.

Dr. Massei, of Naples, thought that when the glottis is open, as in intubation, foreign substances are not as liable to be forced into the lung-cells as during a spasmodic cough and closed glottis.

Drs. Roux, of Paris, J. M. Blyer, of New York, and Dr. Schwalbe, of Berlin, also took part in the discussion.

Dr. Schwalbe spoke unfavorably of intubation. We can readily understand his position after ascertaining that his experience was limited to eight cases.

Dr. Guinon, of Paris, spoke on antiseptic methods as pursued in the Hôpital des Enfants Malades, of Paris, under

Professor Grancher. In order to prevent house infection, all beds with suspicious contagious cases are surrounded on three sides by a screen in order to prevent personal contact, under the supposition that infection does not take place par distance through the air. He claims excellent results.

Dr. Bouchut, of Paris, who was Dr. Grancher's predecessor in the same hospital, held precisely opposite views, as did Dr. Rauchfuss, of St. Petersburg.

Dr. Epstein, of Prague, read a very long paper on "Foundling Asylums." He pronounced them a necessity from a moral and practical stand-point. Germany has no foundling asylums, but shows in proportion as many illegitimate births as France, Italy, and Spain. In the discussion, Dr. Gillet, of Paris, remarked that in his city abandoned children cannot be reclaimed by parents after forty-eight hours, but children can be deposited for a certain stated time. All new arrivals are quarantined; syphilitic infants are put into a separate ward, and get a syphilitic nurse; all healthy children are taken to and brought up in the country, but are at once returned to Paris when they take sick.

Dr. Medin, of Stockholm, reported an epidemic of infantile paralysis,—forty-four cases from May to November, 1887. The children became ill without prodromes, with high fever, drowsiness, coma, or convulsions. The fever lasted from two to eight days, and paralysis set in before defervescence. In seventeen out of forty-four cases, the peripheral nerves were affected, and the following complications were observed: Monoplegia facialis, acute polyneuritis, with paresis of abducens, hypoglossus, facialis, oculomotorius, and vagus; also, atactic and spastic symptoms, and acute nephritis. In one case, Strumpell's typical poliomyelitis, with paresis, was observed. Four children died, and two autopsies showed thick blood, parenchymatous nephritis, hyperæmia of dura and cord, and degenerative changes in the anterior and posterior columns, thus proving that this disease is not confined to the anterior horn. Nothing was observed which pointed to the contagious nature of the disease, but the infectious nature and identity of acute poliomyelitis and acute poliomyelitis appears plausible.

Dr. Rehn, of Frankfort, reported seven cases of scurvy, with subperiosteal hemorrhage, in bottle-fed infants.

Dr. Pott, of Halle, reported two similar cases occurring in children at the breast in healthy and well-to-do families.

Dr. Heubner suggested the administration of orange-juice in this complaint.

Dr. Meinert, of Dresden, reported an epidemic of jaundice, five hundred and eighteen cases having been observed throughout Saxony in 1889. The sickness began with fever and vomiting, the liver and spleen became enlarged, and the skin became yellow. Several children in one family frequently took sick. These cases were not looked upon as catarrhal jaundice, and not as Weyl's disease, and were in all probability of miasmatic, infectious origin.

Dr. Escherich, of Gratz, reported thirty cases of tetany in infants, with pronounced laryngo-spasm in three-fourths of the cases; two died. Treatment consisted in giving cod-liver oil, phosphorus, and potassium bromide.

Dr. Rauchfuss looks upon rachitis cranii as a causative factor in tetany.

Dr. Silbermann, of Breslau, looks upon tetany as a complex symptom, due to many causes.

A. Jacobi has known tetany to develop in children who receive but little fresh air in winter.

Dr. Escherich looks upon tetany as a disease *sui generis*.

Dr. Tolmatschew, of Kassan, recommended a new method of artificial respiration, by elevating and depressing the pelvis in the horizontal posture.

Dr. Van Tienhoven spoke of the treatment of enuresis nocturna by elevating the foot of the bed, thus allowing the urine to collect in the fundus of the bladder and taking away a possible source of irritation from the neck of the bladder.

An interesting subject was handled by Dr. Axel Key, of Stockholm, at the second general session of the Congress, entitled, "Puberty in its Relation to Disease."

The school children of the better class show a period of active development at the age of seven to eight; the next active period is at the age of puberty. Boys are taller and heavier than girls up to the eleventh year; from the eleventh

to the seventeenth year girls are ahead, and after the seventeenth year boys take the lead. About the time of puberty American boys are taller and heavier than boys of other nations, especially as compared with Belgians and Italians. With reference to girls, it has been ascertained that the Swedes have a superior development at the time of puberty. In all countries the children of the poor are inferior in size and weight when compared with the children of the better-situated populace. This difference is least marked in the United States, and conspicuous in Turin and England. During the three months of summer vacation the increase in weight is greater than during the nine months of active school life.

One-third of all school-children are not in perfect health. At the end of the first school year seventeen per cent. are sick; at the end of the second school year thirty-seven per cent. are sick; at the end of the third school year forty per cent. are not in perfect health. Sixty-one per cent. of school-girls of the better class are not in good health, and the burden of school-work is detrimental to the proper development of both sexes.

Younger children require ten to eleven hours of sleep; older children eight to nine hours; and school children are unable to get this amount of sleep. If we divide all school-children into two groups,—1, the overworked; 2, not overworked,—we find from seven to eight per cent. more sickness in the former group.

It will be seen from this report, which is merely a synopsis of the more important pediatric contributions made to the Tenth Congress, that the programme of the Pediatric Section was an interesting one.

On the other hand, it cannot be denied that the polyglot character of the meeting, the hot and drowsy atmosphere during the entire official week, and the tardy management as regards prompt evolution in the order of business, created a mild degree of dissatisfaction in the minds of many of the Section members, which was, however, fully counterbalanced by the cordial and magnificent hospitality of our German *confrères*.

Clinical Memoranda.

A CASE OF CONGENITAL MALFORMATION OF THE RIBS.

BY J. T. OSBORNE, M.D.,

New Haven, Conn.

THE following case has lately come under my notice, and, being rare in its kind and unique in itself, I report it in full.

The subject is a boy, aged thirteen, born in Canada, of healthy parents. He has several brothers and sisters, all of whom are healthy. There is no suspicion of specific taint, and in all respects the boy is strong and healthy, though inclined to "colds."

On the left side of the chest is a triangular-shaped cavity, of considerable depth, entirely unprotected by bone or cartilage formation of any kind. This cavity is seen in the deeply-shaded region of the left chest in the photograph.

The right thorax is normal. The sternum is projected forward, not unlike that of "pigeon-breast," and tipped so that the left half is projected more forward than the right half. This is nature's method of making room for the heart on the right side,—a most provident arrangement, considering the deformity. Were the heart on the left side, a large portion of it would be entirely unprotected by ribs, as is that portion of the left lung at present.

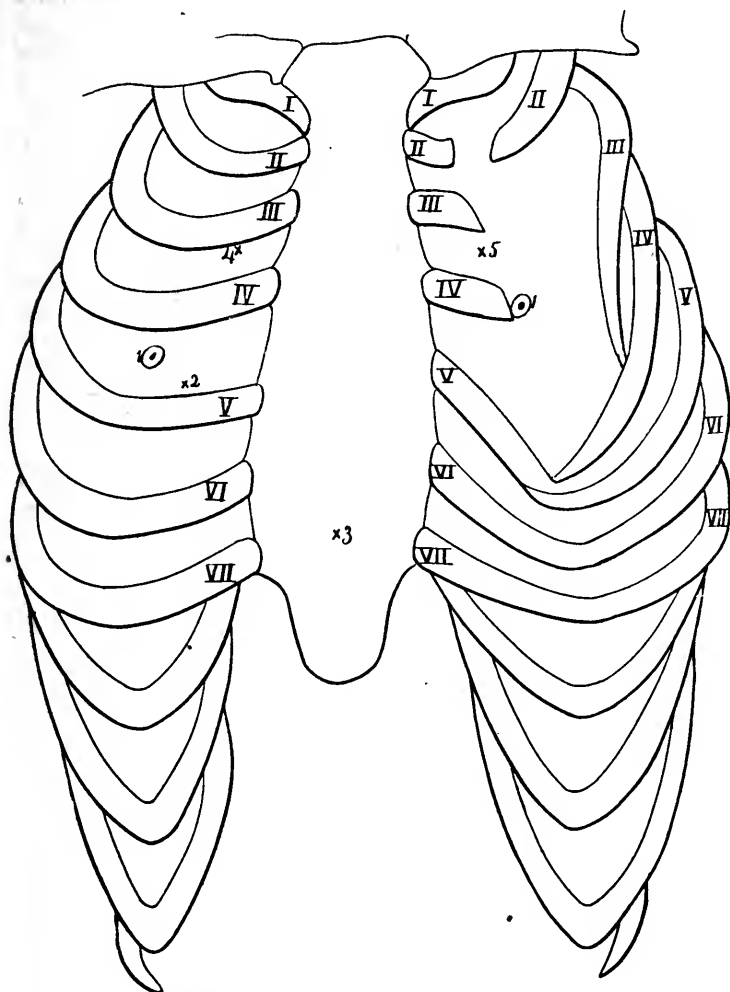
The apex-beat is a little below and a little to the left of the right nipple, in the fourth right intercostal space (see diagram). The mitral sounds are most pronounced at this point. The tricuspid sounds appear the most prominent at the usual place, the lower end of the sternum. The basic closures are most distinctly heard at the right second intercostal space and at the region of the left second intercostal space, respectively, and with equal intensity.

The impulse is felt and seen at the point designated on the right chest, but pulsation is also seen and felt at the inner side of the cavity in the left chest above referred to, the level of the third and fourth costal cartilages. The liver is in its normal position on the right side.



CASE OF CONGENITAL MALFORMATION OF THE RIBS.

On the left side the malformation of the chest wall and arrangement of the ribs can be quite accurately mapped out, as is seen in the diagram, which may, however, be supple-



1. Nipples.
2. Apex-beat and region of greatest intensity of mitral sounds.
3. Region of greatest intensity of tricuspid sounds.
- 4 and 5. Regions of greatest intensity of basic closure sounds.

mented by the following description of conditions and measurements :

The first rib is present. The second rib follows its usual

course to within five-eighths of an inch of the costal cartilage, and then stops with rounded end, thus leaving a space of five-eighths of an inch between it and the cartilage.

The third rib comes to the region of the axilla, and then turns abruptly downward, meeting the descending fourth rib on a line a little below the level of the left nipple, thus leaving a space of from two and a half to three and a quarter inches between the rib and its (third) costal cartilage, the distance between this rib and its cartilage, of course, varying with the position of the left arm, the pectoralis major and minor displacing this rib on motion of the arm. The third costal cartilage ends abruptly and sharply, as seen in the diagram and photograph. The fourth rib is descending obliquely in the lateral region, leaving an appreciable space between it and the third rib, but, curving to the front as it descends, it meets the fifth costal cartilage, also descending, at a point two inches below the left nipple, forming the lowest point and the apex of the concavity. The descending third rib is lost in or behind the fourth rib at—as before stated—a point a little below the line of the left nipple.

The fourth costal cartilage descends slightly and ends abruptly in a sharp point one and a half inches distant from the descending third rib.

At this point, or rather on this point, is the left nipple, which is a little above the level of the right nipple.

The fifth, sixth, and seventh ribs descend parallel with the fourth, lessening the obliquity with the increase of the number of the rib, and meet the descending costal cartilages, the fifth rib losing itself in the mass of cartilage at the junction of the fourth rib and the fifth cartilage, giving the arrangement of the lower ribs as seen in the diagram.

The space destitute of rib-protection is triangular in shape, with the apex at the junction of the fifth costal cartilage and fourth rib, two and a half inches below the left nipple. The base extends from the angle of departure of the third rib from the second rib to the third costal cartilage.

The second, third, and fourth costal cartilages, especially the last two, stop abruptly and sharply, projecting outwards over the receding inner wall of the cavity,—almost projecting through the skin. The surface measurements of the cavity are two and one-half inches, base three inches from the third cartilage to the apex, and from the apex to the axillary angle of the cavity is five inches. The floor of this space is concave, interposing apparently between the stethoscope and the lung nothing but skin, fascia, and pleura. This concave floor naturally rises and falls with each respiration, and, as before

stated, the inner wall shows the heart pulsations,—in fact, giving the sensation that a portion of the base of the heart could be pressed between the fingers and the sternum.

The respiratory sounds are simply intensely exaggerated, normal or puerile breathing. The voice-transmission over this space is almost pectoriloquy.

My excuse for describing this case at so great a length, and so explicitly and perhaps tediously, is that I believe the case to be of interest.

EXCISION OF THE HIP FOR TUBERCULAR OSTEITIS, WITH REMARKS ON KOCH'S TREATMENT OF SURGICAL TUBERCULOSIS.*

BY CHAS. N. DIXON JONES, B.S., M.D.,

Fellow of the New York Academy of Medicine; British Gynæcological Society, etc.

CASE I.—Tillie C., a delicate girl of four years of age, had been suffering for eight months with pain in the left hip, accompanied with lameness and swelling. The patient was in an exceedingly debilitated condition, with bed-sores.

Her temperature ranged from 101° to 102° F. The swelling over the hip-joint was very considerable, with marked fluctuation over the great trochanter. The swelling and abscess also extended upward and backward into the buttock. The patient had received treatment, but without material benefit. Her suffering was very great. The mother stated, "I have not had a single night's rest with her for two months."

The patient entered the hospital May 28, 1888; she received general treatment for five days without material improvement in her general condition. The high temperature, excessive pain, and the large abscess that had formed called for immediate surgical interference.

Under ether, an incision was made three inches long, extending from a point midway between the anterior superior spine of the ilium and the top of the trochanter major, along the neck of the femur, curving downward to an inch below the

* Read before the Orthopædic Section of the New York Academy of Medicine, January 16, 1891, with exhibition of cases.

top of the great trochanter, the cut giving exit to several ounces of pus. The bone was exposed, and the head and neck of the femur excised above the trochanters.

The diseased acetabulum was thoroughly scraped, and all granulation and softened tissue were removed with a sharp spoon. A counter-opening was made at the upper extremity of the abscess cavity, extending into the buttock, and a thick strip of iodoform gauze was drawn between the openings. The wound was thoroughly irrigated with a one to three thousand sublimate solution, and the entire cavity packed with iodoform gauze, which was held in place with pads of sublimate gauze and a spica bandage. The patient was placed in bed with an extension apparatus. After the operation the patient experienced marked relief; the temperature dropped to nearly normal and remained so. The dressing was removed at the end of a week, and the wound again lightly packed with sublimate gauze. Subsequently the wound was dressed about every four days. At the end of two weeks, under ether, and in addition with curetting of the dead and softened tissue, which was done four or five successive times, the wound closed in about five weeks. The recovery was uninterrupted, and a most excellent result was obtained, the patient walking comfortably without apparatus, and has shortening of the limb of only one inch. The joint seemed thoroughly healed, and the child was in a good state of health.

CASE II.—Annie M. Tubercular coxitis of one year's duration. The patient was three years of age and had never walked; suffered pain and distress so that she could not sleep at night. There was much swelling over the joint, with imperfectly-marked fluctuation. The skin was abraded in many places from the dressings and splints which she had worn. After a few days' preparatory treatment she had a similar operation to the one above described. In packing the wound I followed a method advocated by Mikulitz for abdominal wounds,—a handkerchief of gauze was sunk into the wound, forming a bag, to receive the other gauze used in packing. The case progressed favorably, and recovery was rapid and uninterrupted. At no time after the operation in either of these patients was there any cause for anxiety, as the improvement in each case was marked and rapid.

The bone-scoop was used several times after the operation, yet in about three months there was a relapse, and a small sinus formed. A vigorous use of the sharp curette, under full anaesthesia, removed the remaining diseased tissue and completed the cure. The patient now walks easily and is in a good state of health. I do not know that there is anything

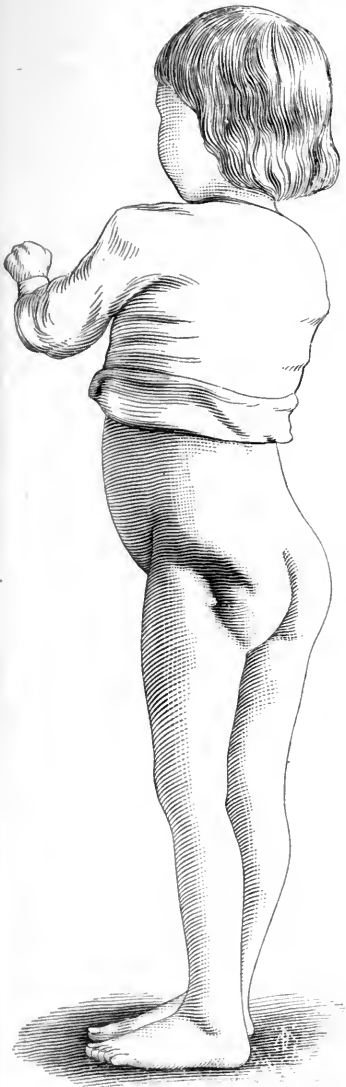


FIG. 1. RESULT IN A CASE OF EXCISION
OF HIP FOR TUBERCULAR DISEASE.
SIDE VIEW.

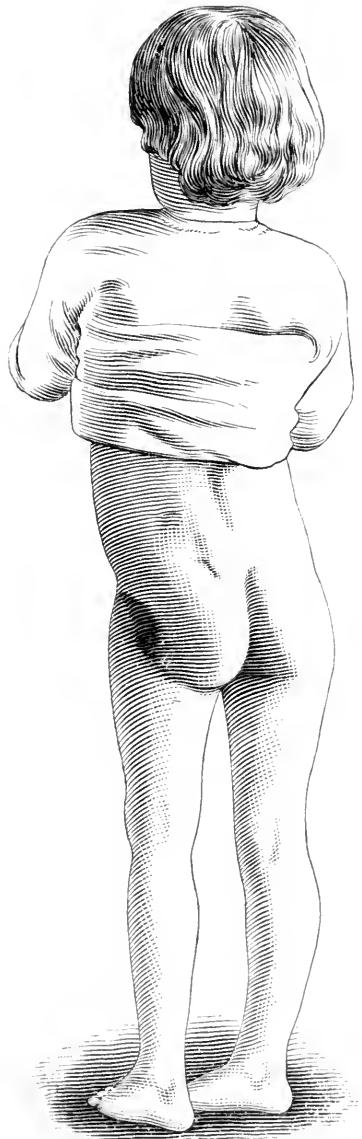


FIG. 2. SAME CASE TWO YEARS AFTER
OPERATION.

novel in the method of treatment pursued in this case, but I feel confident that the frequent erosions of the joint-surfaces is an important element in the termination of the tubercular process.

By early excision of the tuberculous bone, especially in these patients, who are in poor circumstances, a long and painful illness is cut short, and we restore to usefulness one who would otherwise be helpless and dependent. The greatest danger of such an operation is from systemic infection and dissemination of the tubercle virus from the seat of the operation to the general system. Statistics show that the probability of general infection from the excision of the tuberculous joint is so unusual, occurring in only a small percentage of cases, that it cannot be regarded as constituting a serious objection to the practice of excision.

We are indebted to Professor Koch for the knowledge that tuberculosis, in whatever organ it may be located, is produced by the growth and colonization of the tubercle bacilli. When these micro-organisms invade any organ in sufficient numbers to overcome the resistance of the animal protoplasm, an active process of destruction of the tissues is commenced; and the body has no greater enemy than this specific bacillus.

We are also indebted to the genius of Koch for the preparation and introduction of a fluid which, by systemic inoculation causes such a change in living animal tissue as to neutralize the effect of the tubercle bacillus, and arrests its growth,—in other words, causing necrosis of the tubercular tissue. It is not certain that it will kill the bacilli themselves, but rather the tissue in which they are located. This necrobiosis invades tissue that is destined to be eliminated in some way from the animal economy. As Dr. Schede has already truly said, "Surgical measures will remain indispensable in dealing with accessible tubercle."

While the whole question of the permanently curative properties of lymph are *sub judice*, still the expectations of Professor Koch are so far realized in the treatment of superficial tuberculosis as to encourage further research.

Judging from the cases that have so far been reported, we may feel justified in concluding that the prognosis in those cases classed under the head of surgical tuberculosis is most favorable.

I have a case of bone and joint tuberculosis now undergoing treatment, in which the conditions are most favorable for the observation of both the systemic and local reaction following the injections, and for the developing of the properties of the new fluid. In a case of tubercular osteitis of the

hip in a girl nineteen years of age, I removed, a few days ago, the diseased bone, leaving an open wound, which was packed with sublimate gauze. She will now be treated by systemic inoculation with Koch's remedy until no further reaction can be produced.

Gouging with a sharp curette will then remove by mechanical means the necrosed bone and tissue much better than in any other way.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, March 12, 1891.

AUGUST CAILLÉ, M.D., *Chairman*; WALTER LESTER CARR, M.D., *Secretary*.

URETHRAL CALCULI.

Dr. Henry Koplik presented two specimens of urethral calculi, and said that, while they were called urethral calculi, they were really renal calculi which had lodged in the urethra. The first was a fusiform, laminated calculus, taken from the urethra in a child aged one year, which had complained for some time on urination. He grasped the calculus with the forceps, but tore the meatus slightly in extracting it. It had lain about an inch from the orifice. In this, as in the other case, the parents had practically made a diagnosis when the child was brought to the clinic. They were Russians. The second calculus was of irregular form, and occurred in a boy of two years, who the last two months would be suddenly seized with paroxysmal pain, grasp the penis, and cry out; then water would flow in jets, and at its termination the pain would cease. The calculus was removed by forceps, the meatus being torn somewhat. He thought the introduction of the sound for diagnosis in suspected cases would do no harm.

Dr. William Perry Watson asked whether there would not have been rupture of the ureter in the passage of calculi of this size, if they came down from the pelvis of the kidney; if there had been convulsions, or if there had been hæmaturia, and having obtained a negative answer, and having measured the calculi (one being one-fourth by one-sixteenth of an inch, the other one-half by one-eighth of an inch), he expressed the opinion that they were not renal.

ESCHERICH'S MILK STERILIZER.

Dr. Koplik demonstrated Escherich's latest milk sterilizer, which was presented at the Tenth International Medical Congress, this being, he believed, the only one in this country. It consisted of a tin reservoir, holding about three quarts of milk, which could be hermetically sealed with ease, was set in a bath of water, the water nearly as deep as this can, and boiled preferably, though it might be steamed. It was hung by the bedside, and milk drawn into a bottle by a clean stopcock, as needed. Milk thus prepared was perfectly safe twenty-four or forty-eight hours. He regarded it as useful in small or large institutions, but too costly and cumbersome for private families.

ASEPTIC EXPLORING-NEEDLE AND APPARATUS.

Dr. Koplik also showed an apparently complex, yet simple and inexpensive, apparatus connected with the exploring-needle. The idea was obtained from laboratory apparatus, and consisted in attaching some pieces of glass tubing to the needle, the several parts united by aseptic pieces of rubber tubing, closed at either end by a small spring. When the needle was introduced into the empyemic cavity, the spring was set loose and fluid was drawn up into the vacuum, which could then be disconnected from the needle, the latter cleansed and used on another occasion, the remainder of the apparatus renewed, since it cost only five cents. The fluid in the glass cylinder, being shut off from the air, would remain uncontaminated until laboratory examination could be made.

URETHRAL CATHETER.

Dr. John Dorning presented a metallic catheter, specially devised for use in children, being about No. 5, and said the credit for its invention belonged to Dr. Ripley. It had a curve, could be used in the male or female child, either for obtaining urine or for exploratory purposes. It was composed of two sections, and could be carried in the pocket-case.

Dr. Watson said he had used this catheter during the last seven or eight years upon patients of all ages, and with entire satisfaction.

Dr. Koplik preferred the English webbed catheter, No. 3 or 4, for drawing urine. The child's urethra being very distensible, one could even pass a No. 9 soft rubber. Of course with these one could not sound for stone.

CONTRIBUTIONS FOR 1890 TO OUR KNOWLEDGE OF
DIPHTHERIA.

Dr. J. Lewis Smith read the paper, which was based on a review of five or six volumes of clippings from current literature, all on the subject of diphtheria, published the past year. A considerable portion of it related to the etiology, especially microbic investigations. From this point of view two varieties of diphtheria were coming to be pretty generally recognized by authorities. In the first variety the disease was attributed to a definite germ, the Klebs-Löffler, while the second included cases due to other germs. Prudden and Welch in this country also regarded genuine diphtheria as due to the Klebs-Löffler bacillus. This theory had come to be as well established as most theories regarding the bacterial origin of other infectious diseases. The author thought it could be affirmed that the ptomaine of the bacillus in question produced certain anatomical changes in the interior of the body, peculiar paralysis, and a nephritis attended by albuminuria, and little or no dropsy, or uræmic poisoning. He also thought we could accept as a fact that there was a pseudo-diphtheria produced by other germs. It was more commonly seen in connection with eruptive fevers. But it was also possible for true diphtheria to develop when scarlet fever was well under way. It was probable that the anatomical changes, aside from the diphtheritic membrane, were caused only by the Klebs-Löffler bacillus, or arose only in true diphtheria.

Several cases had been reported during the year in which it seemed evident that diphtheria had been communicated to man by cats. Fowl were capable of doing the same thing. He was surprised to find that Klein, of London, who was recognized as a very able bacteriologist, had stated that he had inoculated two cows at the shoulder with Klebs-Löffler bacillus, and then found the bacillus in the milk of the animals. All other bacteriologists, in Germany, France, and in this country, regarded this bacillus as localized on the surface, never entering the system. Prudden thought Klein was mistaken in the bacillus.

There were many facts going to show the great tenacity to life of the Klebs-Löffler bacillus. Cultures had kept sixteen months, apparently losing none of their virulence at the end of that time. It had also great fixity to objects.

Dr. Koplik said that the streptococcus had been found, after careful search, in the excretions, and he thought it not improbable that greater attention to this subject would also show

that the Klebs-Löffler bacillus sometimes entered the general system and appeared in the excretions.

Dr. August Seibert did not think the classification of diphtheria into true and pseudo-diphtheria would hold in the future. It would be shown, he thought, that the disease was always due to the same bacilli, but that its severity differed according to the number of these. Other germs might obscure the Klebs-Löffler in the doubtful cases, but he thought an expert bacteriologist would find at least a few of the latter by careful search. He also believed we often diagnosticated diphtheria where there was no Klebs-Löffler bacillus, and he doubted whether we would ever be able to make the diagnosis in some cases clinically.

Dr. Joseph E. Winters's experience coincided with that of others, that where true diphtheria complicated scarlet fever, it usually developed in the advanced stage of the latter after the sixth or ninth day. Sore throat appearing earlier was not likely to be manifestly diphtheria.

Dr. Dessau thought it would be fully substantiated that true diphtheria was due to the ptomaine of the Klebs-Löffler bacillus, but that there might be, as Dr. Seibert had suggested, mixed forms, where other germs produced their influence in connection with a smaller number of the Klebs-Löffler.

Dr. Henry Berg thought that while theoretically it might be well to distinguish a true and a pseudo-diphtheria, yet at the bedside it was almost impossible to make the distinction in any serious case. He related the case of a boy in a family of several children who had repeated attacks of follicular tonsillitis on different occasions, then had another apparently similar attack, as did also the rest of the children, and which he pronounced follicular tonsillitis, yet the boy went on to have characteristic diphtheritic paralysis and other after-lesions. So with diphtheria complicating measles and scarlet fever, he had seen diphtheritic paralysis develop subsequently. He had learned, in doubtful cases, to make a diagnosis of diphtheria, at least to the parents, rather than to exclude it and afterwards possibly find that he had been mistaken.

Dr. Smith, in closing the discussion, said that Jules Simon, of Paris, who had a large hospital practice, now stated positively that a case was not true diphtheria when the Klebs-Löffler bacillus could not be found after careful microscopical examination, and *vice versa*.

Referring to the literature regarding the treatment of diphtheria during the past year, he said that iron continued to be used, but that in France they had discarded chlorate of potassium as mischievous even in small doses. It was supposed

to increase the number of cases of renal complication. In this country and in Great Britain the chlorate of potassium was being used in much less quantity than formerly, and some did not give it at all.

PEDIATRIC REPORT OF THE TENTH INTERNATIONAL
CONGRESS.

Dr. August Caillé read the report, which will appear in this number.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Middlebrook, E. S.: Practical Measures for controlling the Spread of Infectious Diseases. (*Kansas City Medical Index*, 1890, xi. 425.)

All contagious cases should be immediately isolated. The sick-room must be well ventilated, without cold draughts, completely cleared of all needless draperies, carpets, and furniture, and possibly sheets wet with some disinfectant, as sulphate of zinc, hung at the door communicating with the other part of the house. No one save the doctor, the nurse, and the nearest relative should be allowed to enter the sick-chamber until all danger of carrying contagion is past. The physician should, if possible, change his clothing and carefully wash his hands and whiskers on leaving the room. The nurse should have a dress made of the material called "wash goods," rather than of wool, which readily harbors germs of all kinds.

Soft cotton rags should be used for wiping the nose and mouth, and after once using should be immediately burned. A disinfecting solution should always be put in the cuspadore for the patient to spit into; and all discharges from the body should be received into vessels having the same disinfecting fluid, and quickly emptied into the water-closet. Clothing of the patient, bedclothing, etc., should, when changed, be thrown into a disinfecting solution, as

R Bichloride of mercury,
Permanganate of potassium, āā ʒii. ;
Soft water, 1 gallon. M.

They should remain in this solution at least two hours, then taken out and boiled. The washing should not be allowed to be sent away from the house.

The family doctor should examine the plumbing, the sinks, drains, privies, and cesspools; if the pipes leak, they must be repaired; if the privies or cesspools are foul, they should be thoroughly disinfected with

R Sulphate of copper, lb. $\frac{1}{4}$;
Corrosive sublimate, $\frac{3}{4}$ i;
Water, gallon i. M.

The same solution may be used for sinks, drains, etc. Great care should be taken that the water used for drinking is of a proper kind and pure. If doubtful, it should be boiled before using. The same care with the milk should also be used.

After recovery, all clothing and bedclothes should be carefully disinfected. If the patient die, the body should be wrapped in a sheet saturated in a strong sublimate solution and buried as soon as possible; the funeral should be private, and no one allowed to "view the body." The house should be fumigated with sulphur by a competent person, all bedclothes, woollens, etc., being strung on clothes-lines in the room. The mattress should be burned. After having the cracks of the windows and doors carefully stopped, a common wash-tub should be placed in the middle of the room, with about three inches of water in it; in this an iron kettle is to be placed, containing for every one thousand cubic feet in the room three pounds of sulphur; a little alcohol is to be poured on the sulphur, and a match touched to it. The room must remain tightly closed for twenty-four hours or more, and then the room and contents "aired" for several days.

The following rules of Dr. Charles Chapin ought to be followed in tuberculosis: 1. Teach the people the true nature of tuberculosis,—that no one ever has tubercular consumption until the tubercle bacilli find their way into the lungs. 2. Teach them also that even if it find a foot-hold there, it will not grow unless the conditions are right. Teach parents how to rear healthy boys and girls; tell them what to eat and what to wear; to exercise, and to breathe fresh air. 3. The contagion must be destroyed. The consumptive patient gives off the poison only in the sputum or in the excreta, in certain cases. The virus is not given off from them while moist; we must therefore disinfect all sputa at once with mercuric bichloride, cloths used instead of handkerchiefs, and then burned, or at least soaked in a strong bichloride solution and then boiled. Frequent disinfection of persons and apartments would be safe additions to these

measures. 4. Persons who have marked predisposition to the disease should not come in close contact with the phthisical.

As to tuberculosis in animals, the government should take active measures in (1) having all cases of tuberculosis reported to the proper officer; (2) slaughter of all infected animals, and isolation of all that have been exposed; (3) thorough disinfection of all buildings that have been used by diseased animals; (4) confiscation of flesh and milk and milk products of tuberculous animals.

Brush, E. F.: *The Use of Commercial Milk-Sugar in Infant-Feeding.* (*New England Med. Monthly*, 1890, x. 62.)

One of the faults of the physiological chemists is that they make no distinction between a substance existing in a natural condition and that substance eliminated and isolated by chemical means. Thus, the sugar of milk of commerce and the sugar of milk as it exists in that fluid are regarded by the chemist as one and the same thing. This is not the truth. Sugar of milk in that fluid is all assimilated, and the milk-sugar of commerce, when added to baby-food, is eliminated both by the kidneys and bowels. This I have demonstrated by numerous experiments. I have never found sugar present in the urine or fæces of babies fed at the breast, but in three cases of infants fed with mixtures containing commercial milk-sugar to the amount of three ounces or more in twenty-four hours, as in Meig's mixture, I have always found sugar in the urine and fæces, demonstrated by Fehling's test. Therefore, instead of being valuable as a nutrient, it must be harmful. Routh and nearly every one who recommends the sugar of milk as an infant-food, says that it undergoes fermentation less readily than the ordinary sugar. This would be rather against any article of food, because any substance that responds readily to any of the fermentative changes will also respond quickly to the digestive ferments.

From specimens of milk-sugar bought in the open market I found that they were not pure, and from the method of its manufacture it could be seen that many of the other crystallizable bodies contained in milk would be included in this crystallization, as well as the alkaloids of ptomaines. If these experiments are followed out, I am positive that it will change the views of many gentlemen who have taken me to task for recommending the use of pure cane-sugar as an addition to infants' food when sugar addition is needed. I really think that the value of the addition of any sugar to good milk is over-estimated.

Logan: Observations on some Diseases of Young Infants. (*Liverpool Medico-Chirurgical Journal*, January, 1891.)

These observations are confined to children under one month of age. In England, in every one thousand births, one hundred and forty-five children die within the first year. The death-rate in male children under five years during the last decade, as compared with the decade of thirty years ago, decreased nine and twenty-six-hundredths to the one thousand, while that of adults decreased but two and twenty-three-hundredths. This improvement is to be largely attributed to greater care and intelligence in the management of infants.

Among general diseases, general feebleness may first claim attention. It is due to a great variety of causes, the child being born with such low vitality that the preservation of life is very difficult. Icterus and syphilis are common in the first month, but the author has not seen rickets.

Aside from apnoea immediately after birth, diseases of the respiratory system show nothing characteristic.

The umbilical cord, when properly cared for, is rarely the root of disease.

Thrush is a common and very troublesome disorder. It is best controlled by the free application of a borax solution, and the cure is usually hastened by the administration of small doses of gray powder.

Dyspepsia and gastro-enteritis are by far the most formidable disorders of the first month of life. While they may sometimes be due to inherited weakness, in most cases the direct cause is bad feeding. When artificial feeding is necessary, the author prefers cow's milk, and refers to the fact that greater dilution will often render milk that has before disagreed more digestible. He does not use condensed milk. Peptonized milk is, in some cases of weak digestion, invaluable, but its use should not be continued when the stomach regains normal strength. The most valuable drug in these gastro-intestinal disturbances is gray powder or calomel in minute doses frequently repeated.

Cephalæmatoma should be protected from injury, but should otherwise be left alone.

Ness: The Use of Anæsthetics in the Children's Hospital of Glasgow. (*Glasgow Medical Journal*, January, 1891.)

Since the opening of the hospital, in 1883, chloroform has been invariably used,—ether being employed only in exceptional cases. During this time no death has occurred during

the administration of an anæsthetic. Notes have been taken of one thousand and eighty cases; no record, however, being kept of dressings and examinations under chloroform. Counting these, the number would reach over two thousand.

Beltz: The Treatment of Whooping-Cough. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

In the author's experience with this disease there has been more or less pronounced nasal catarrh, as an accompaniment, in all the cases. By treating this catarrh, he has found that the paroxysms of coughing were favorably influenced. In some of the cases there was an immediate diminution in the number of paroxysms, in others a diminution in their intensity and duration; while in others there was no perceptible benefit.

In the first group there were nine cases.

In the first case there were thirty paroxysms on the first day of the disease. Nasal insufflation was practised, and on the next day there were only twelve paroxysms. After ten days of treatment the patient was cured.

In the second case treatment began in the third week of the disease, when there were ten paroxysms daily. After nasal insufflation the paroxysms were reduced to five daily, and during the following fourteen days there were not more than two each day.

The third case was seen during the first week of the disease, the number of daily paroxysms being ten. After insufflation the number was reduced to six. During the following two weeks six insufflations were used, and then the patient was cured.

The fourth case was seen at the end of the first week, when there were six to eight coughing-spells daily. Insufflation resulted in a cure in twelve days.

The fifth case was seen at the beginning of the third week, when there were sixteen attacks daily. After four days of insufflation the number was eight, after six days two, and in three weeks the patient was well.

Treatment in the sixth case began at the second week. After thirteen days of insufflation there were seven daily attacks. After twenty-five days the patient was well.

Treatment in the seventh case began when there were twenty-two paroxysms daily in the first week of the disease. After fifteen days of treatment there were nine paroxysms daily, and at the end of four weeks the patient was cured.

Treatment in the eighth case began in the second week, when the attacks were few in number and of moderate intensity.

After the first five days of insufflation the attacks increased to twenty-five daily. Then they slowly diminished, and on the sixteenth day there were only six. The patient was well at the end of five weeks.

Treatment in the ninth case began in the second week, when there were twenty severe paroxysms daily. After eight days of insufflation there were eleven daily; then they increased to fifteen. On the seventeenth day there were seven, and at the end of four and a half weeks the patient was cured.

In the second group there were three cases. One was cured after fifty days of treatment, one after fifty-six days, and the third after fifty-eight days.

In the third group there was no perceptible result after long continued use of insufflation. Nitrate of silver was used for insufflation in all cases, either daily or every other day.

A. F. C.

Löffler, Raux, and Wachsmuth: Diphtheria: Its Extension, and the Best Means of preventing it. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

Patients with diphtheria should, of course, be isolated, and in a room containing only the barest necessities in the way of furniture. All the surroundings of the patient must be freed from bacilli by the use of superheated steam. Children who have had diphtheria must be kept out of school at least four weeks. The resisting powers of the bacillus of diphtheria are such that it can retain its vitality in large and moist membranes for fourteen to sixteen weeks. Löffler is not quite certain that diphtheria can be transferred from animals to human beings, but he believes that the bacillus may locate itself upon unbroken mucous membrane, hence the necessity for the use of mouth-washes for children, for prophylactic purposes. A one to ten thousand solution of sublimate may be used for this purpose. He does not believe that climate has as much to do with the danger of contracting this disease as have bad hygienic conditions. His conclusions are:

1. The diphtheritic spore is the cause of the disease, and is to be found in the diseased mucous membrane.

2. As long as any traces of diphtheritic exudate remain, the bacillus or spore may be found, and in some cases it may be found after such traces have disappeared.

3. In dry membranes the spore will retain its vitality four or five months, hence the necessity for disinfecting everything which could come in contact with the diseased excretion. This may be done by boiling, or by subjecting to steam at 100° C.

The floors should be washed with a one to one thousand solution of sublimate, and the walls rubbed down with bread.

4. The bacilli retain their vitality longer in moist than in dry surroundings, hence moist and dark rooms are favorable for their development.

5. The bacillus of diphtheria thrives very well outside the body at a temperature of 20° C.; it also grows very well in milk; hence the necessity for careful regulation of the milk business.

6. The diseases which resemble diphtheria in certain species of animals are not caused by the bacillus which causes diphtheria in human beings, nor will they result in producing diphtheria in human beings.

7. The etiological identity of diphtheria in cats with that in human beings has not been proven.

8. Lesions of the mucous membrane favor the development of the bacillus of diphtheria, but are not essential thereto.

9. The influence of certain meteorological factors in determining the spread of diphtheria has not yet been positively shown.

Roux affirms that the diagnosis of diphtheria cannot be bacteriologically determined with certainty until the middle of the second day of the disease.

In regard to treatment: the use of antiseptic irrigation must be continued until the bacilli have disappeared from the mouth. Such treatment should continue from eleven to fourteen days. The furniture of the sick-room, and all the surroundings, should be disinfected with boiling water or steam, the patients should be isolated, and antiseptic irrigation should be continued as long as any trace of angina remains.

Wachsmuth recommends the following prophylactic precautions:

1. The yard contiguous to the house in which diphtheria has prevailed should be disinfected.

2. Places in which dust accumulates should be disinfected with carbolic acid, and the dust collected and carried away.

3. Means for producing perspiration upon the body are among the most efficient agents in the prophylaxis of diphtheria.

A. F. C.

Beck: Bacteriological Investigations Concerning the Etiology of Diphtheria in Human Beings. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

The author has sought for the bacillus of Löffler in fifty-two cases of diphtheria, and has found it in every case. It

was not found in seventeen cases of follicular angina, nor in twenty-eight cases of catarrhal angina. He has studied the virulence of the tissues of animals which had received subcutaneous injections of the bacilli, and found that when it was transferred to other animals a fatal result followed in four or five days. Death did not result, however, in cases in which the injection consisted of particles of tissue impregnated merely with fluid which had caused œdema of the diseased animal.

The false membranes which developed upon the mucous membranes of the diseased animals contained other bacteria in addition to that of Löffler. These, with the exception of the streptococcus, were without pathogenic properties. The streptococcus was in most cases found upon the surface of the false membrane, but in some instances there were colonies which penetrated to the underlying tissues. In the very bad cases streptococci were found in the lungs, the lymphatic glands, the kidneys, but never in the blood.

Subcutaneous injections of the pure cultures obtained by the author into rabbits caused œdema at the point of inoculation and inflammation of the joints. Inoculation in the trachea did not result in the formation of false membranes, but when the animal died, streptococci were found in most of the viscera and in the exudation in the joints. Inoculation with culture fluids of guinea-pigs, pigeons, and chickens gave no results. In the fifty-two cases of diphtheria in human beings investigated by the author there were many in which streptococci were found. In these cases there was mixed infection, the rôle of the streptococci being a secondary one. In several of the cases there were no streptococci at the beginning of the disease in the false membranes. In the severe cases streptococci were found after death in almost all the viscera. In two cases streptococci were found in the membranes three days after the disease began. The conclusion of the author is that the bacilli of Löffler prepare the soil and favor the invasion of the streptococci, which penetrate the general circulation and provoke the serious phenomena which are characteristic in severe cases.

A. F. C.

Brieger and Fränkel: Investigations Concerning the Poisons which are generated by Bacteria. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

It has been observed by Löffler that when bacilli are injected under the skin of animals they remain at the point of inoculation. He explains general infection with visceral lesions by the presence of a poison generated by the bacilli, which penetrates the organism. In the opinion of Löffler,

which coincides with that of Roux and Yersin, this poison is a form of diastase. Brieger and Fränkel have endeavored to ascertain the nature of this poison. They took diphtheritic membranes obtained from twenty-two patients, the specific character of which was determined by microscopic examination, by cultures, and by inoculations. The cultures were sterilized by heat, and by filtration with Chamberland's apparatus. When filtered cultures of the poison were used, the latter decomposed at a temperature of 100° C. A temperature of 50° C. sufficed to destroy the bacilli, when they were subjected to it for four or five hours, the poison generated by them remaining intact. Experiments made with sterilized cultures showed that the results were the same as those which were obtained with cultures containing the bacilli. When subcutaneous or intravenous injections were made, there were the same phenomena in the inoculated animals, the same anatomical lesions after death, but with this difference,—that when sterilized cultures were used it was impossible to produce false membranes. Special investigations showed that the poison which was obtained was not a ptomaine, and did not crystallize. By saturating the sterilized cultures with ammonium sulphate, a precipitate was obtained which was insoluble in alcohol, but soluble in water, which gave the reaction of the biuret, and appeared in the form of a white, amorphous, granular mass, giving in most respects the reactions of albuminoid bodies. Brieger and Fränkel did not hesitate to consider this substance as a derivative of albumen, which had a close relation with serum-albumen. They considered it a toxalbumen. This substance was found to be very poisonous, and was fatal to animals which were inoculated with it in doses of two and a half milligrammes to each kilogramme of weight of the animal. In smaller doses it produced the same phenomena and the same lesions as sterilized or non-sterilized cultures, but without the production of false membranes. Roux and Yersin have also observed that the diphtheritic poison is a soluble ferment, a diastase, the dialyzing property of which explains its diffusion in the organism.

A. F. C.

Fränkel : Conditions of Immunity in Diphtheria. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

The author, in endeavoring to confer immunity, has proceeded in two ways. In one he used attenuated cultures, after Pasteur's plan; in the other he used soluble products, free from all germs, after the method of Salmon and Smith, Roux, Gamaleia, and Bouchard. The use of chemical substances,

like the bichromate of potash, or gentian violet, or a culture fluid at high temperature, will readily yield microbic products corresponding to the characteristics given by Pasteur. Such products confer only a transient immunity, which is extremely uncertain, and in some cases does not exist at all. Inoculated animals in some cases survive such treatment, in others die in the usual manner. By modifying the experiments, and using certain cultures spontaneously attenuated, like those produced upon *gelose*, the results were negative as in the previous method. The use of the second method, in which soluble products, especially toxalbumen, were employed, has not been followed by results which were any more satisfactory. Toxalbumen does not confer immunity. Fränkel also experimented with cultures sterilized at different temperatures. Cultures at 100° C. conferred immunity in some cases, but the immunity was almost perfect when guinea-pigs were inoculated with ten to twenty centigrammes of diphtheritic culture, which was kept for an hour at a temperature of 65° to 70° C. Virulent injections should not be made sooner than fourteen days after the preventive inoculation. If the injections are made after a shorter period than the fourteen days, there will be a more intense and more rapid infection of the animal, showing a diminution in the resistance of the animal. Fränkel admits that there are two different substances in the cultures,—toxalbumen and the vaccinating substance. The toxic substance loses its poisonous properties at a temperature between 55° and 60° C., while the vaccinating substance resists higher temperature, but is profoundly changed at 100° C. However, animals inoculated with cultures at 100° C. have not always acquired immunity. A temperature must, therefore, be found at which the toxic substance is neutralized and the vaccinating substance only slightly changed. Experiments showed that this double indication was met at a temperature of 65° to 70° C. This purely experimental method has not as yet had practical demonstration upon human beings. A. F. C.

Descroizilles: Treatment of Convulsions in Children. (*Journal de Médecine*, February 1, 1891.)

The first thing to be done when convulsions occur is to remove the child's clothing as quickly as possible, to see if a pin or some other irritating substance has caused the trouble. Then the body should be sponged with lukewarm water, or it may be immersed in a bath of the same, to which mustard-flour has been added. In some cases cold affusions upon the head will be efficacious, or a stream of cold water may be allowed to fall upon the fontanelle. In Germany and Switzerland the

cold bath is frequently used should convulsions occur in the course of a fever.

The source of irritation may be in the alimentary canal, and in such a case vomiting may be provoked by tickling the palate or by the administration of an emetic. In other cases a purgative may be required, and it is recommended that ten to twenty centigrammes of calomel be administered, or five to fifteen grammes of castor oil, or eight to sixteen grammes of manna. If there are evidences of worms, a vermifuge should at once be administered. If there is cerebral hyperæmia, leeches may be applied behind the ears, or at the lower extremity of the thighs, or in the tibio-tarsal region. With very robust children, free bleeding at the arm or at the saphenus vein may be practised. Occasionally, warm cataplasms will be found serviceable, or sinapisms applied to the lower limbs. Troussseau's method of compression of the carotids will also be found efficient in some cases, but should be practised with great care. Inhalation of chloroform may be of transient benefit, but is a dangerous remedy.

If the convulsive state is of long duration, the author recommends the administration of five to ten centigrammes of oxide of zinc with an equal quantity of hyoscyamus. Another useful combination is the bromide of potash and chloral. Of the former, fifty to one hundred centigrammes may be given to very young children, two to four grammes to older children, and four to six grammes to those who are approaching convalescence. The chloral may be given in five-centigramme doses to new-born infants, fifteen centigrammes to nursing infants, twenty to thirty centigrammes to those who are over two years of age, and forty to eighty centigrammes to those who are between the ages of seven and twelve years. The use of the chloral should be suspended at once if its effects are not good. After a paroxysm is finished the child should be kept absolutely quiet for a time. Then different tonics may be given, and the use of the bromides should be continued a long time. Cold affusions to the head should also be prescribed; rubbing of the body, frequent warm baths, and careful regulation of the diet. From time to time it may also be well to administer small doses of calomel, valerian, and oxide of zinc.

A. F. C.

Behring: Immunity from Diphtheria. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

There are several methods for producing in animals immunity from diphtheria. The most recent of these are the following:

1. This method consists in vaccinating with products generated from an animal which has died from diphtheria. By this method Behring has conferred immunity upon guinea-pigs which had previously received subcutaneous injections of pleuritic exudate obtained from an animal which died from diphtheria.

2. By this method the progress of infection in inoculated guinea-pigs has been arrested, injections being made a few hours after infection was received with iodo-chloride of gold in a one- or one-half-per-cent. solution.

3. Immunity from ulterior infection was obtained in guinea-pigs and rabbits by injecting, a few days before exposure to infection, a ten-per-cent. solution of peroxide of hydrogen.

4. Rats have a natural immunity from diphtheria. This immunity, which also exists in respect to tetanus is caused by a property which the blood possesses of rendering toxic substances developed by the bacilli inoffensive. The blood of rats inoculated with powerful doses of virulent culture-substance may be injected with impunity into guinea-pigs.

A. F. C.

Roux and Yersin: Contribution to the Study of Diphtheria. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

This abstract is from the third report of the authors upon this subject.

Culture experiments will enable one to recognize in twenty-four hours the nature of a doubtful case of diphtheria. The material is to be obtained by gently scraping the surface of a membrane and inoculating two or three tubes containing serum. After subjection of the tubes to a temperature of 35° C. for twenty-four hours colonies of Löffler's bacilli will appear. Thus a very useful means of diagnosis is furnished. Of eighty children in a diphtheria hospital ward, sixty-one gave evidence of the presence of Löffler's bacillus. Of this number, thirty died and thirty-one recovered. The other nineteen cases, in which no bacillus was found, all recovered.

The prognostic value of such experiments is not always decided. There is no constant relation between the virulence of the bacilli and the gravity of the diphtheria. The virulence would seem to diminish as the case approaches a cure. If in two successive examinations there is an evident diminution in the number of Löffler's bacilli and an increase of other less harmful microbes, a cure may be expected. With reference to prophylaxis, if the treatment is energetic the bacillus will usually disappear quickly from the mouth, but in some cases it will be found again, in all its virulence, eleven to fourteen

days after the disappearance of the false membrane, hence the patient must be isolated for a long time, and the cleansing of the mouth must be continued as when the disease was in progress.

A false membrane which is kept dry and removed from air and light will contain bacilli of full vitality at the end of five months. The virus resists a dry temperature of 98° C. more than an hour, but it will succumb to a moist temperature of 58° C. after a few minutes, hence boiling will sterilize the clothes and other objects which have been used about a patient with diphtheria.

With reference to pathogenesis, the authors have recognized in the mouths of healthy and diseased children a pseudo-diphtheritic bacillus which does not differ perceptibly from the attenuated bacillus of Löffler. They are unable to decide whether this microbe can change its nature and become pathogenic.

A. F. C.

Oertel: *The Poison of Diphtheria and its Method of Action.* (*Deutsche Med. Wochens.*, No. 45, 1890.)

The first effect of the diphtheritic poison is the death of the cells, especially the leucocytes, which absorb it. The process of mortification is everywhere manifested by the same modifications, division, and destruction of the nuclei and the cells, necrobiosis and transformation of the protoplasm and the nuclear substance into a reticulated granular material. The process of mortification in diphtheria is that of necrobiosis everywhere.

The second effect of the poison is manifested after the death of the cells by the formation of a hyaline substance, which is not derived from the albumen of the cells alone, but also from the connective and muscular tissue in the regions where the infection is especially intense. The proliferation of the bacilli upon the surface of the mucous membrane gives rise to inflammation and to a migration of leucocytes. The latter are soon changed by the poison and form a focus of necrosis. When the poison penetrates into the deeper portion of the mucous membrane, there is an accumulation of round cells upon the surface, which soon die, the formation of a focus of necrobiosis, destruction, liquefaction, and hyaline degeneration of the products of destruction, with exudation of plastic lymph. When the focus has been formed, a short distance below the surface of the epithelium a secondary pseudo-membrane is formed. The poison transported by the cells and the liquids of the organism forms similar foci in the deeper portions of the mucous and submucous tissue, and

then the tonsils, the uvula, the velum palati, the larynx, and the trachea are attacked in succession. As the false membranes in these latter organs may be formed from deep foci formed by the poison, it becomes evident why specific micro-organisms are not always found there.

The cervical and bronchial glands also present foci of necrosis and degeneration identical with those of the epithelium and the mucous membrane of the pharynx. The same lesions may be found in the viscera, especially in the spleen, the stomach, the intestines, and the mesenteric glands. These lesions are absent in subacute diphtheria, and there are present only the ordinary phenomena of inflammation, namely, hemorrhage and round cells in the interstitial tissue and around the vessels. The vessels themselves present characteristic lesions, hyaline degeneration of the walls and the leucocytes, and excessive friability of the capillaries. This explains the frequent occurrence of hemorrhage in almost all the organs and in the serous membranes. It may be supposed that in the living organism the toxalbumen of Brieger and Fränkel is formed at the expense of the serum of the blood and lymph, but nothing has yet been brought forward to confirm such an hypothesis. The formation of these foci of necrobiosis, which proceeds from the infection of the epithelium and the mucous membrane and then involves the internal organs, may be considered as the essential character of diphtheria, and the source of the diphtheritic poison.

The author's work is concluded by certain considerations of a therapeutic character. He agrees with Roux and Yersin in his belief in the value of local medication. But such treatment is believed to have value only upon the primary membranes which have been formed, and is considered powerless with respect to those membranes which are formed deeply within the tissues. He believes that the best results are to be obtained with atomization and inhalation of a one-twentieth solution of carbolic acid. Heubner differs entirely from Oertel in his views as to the formation of the diphtheritic membrane. He thinks that cellular necrosis is the efficient agent in its production, and that it is derived almost entirely from the croupo-fibrinous exudation which proceeds from the inflamed vessels. In his opinion the epithelial cells are almost passive in this process, and they are found in the membrane in more or less isolated layers, often containing their nuclei, which, however, may be somewhat degenerated. Heubner's investigations have been made upon false membrane removed during life from the tonsils.

A. F. C.

Löffler: Present Condition of the Question Concerning the Development of Diphtheria. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

In this paper the author has studied the conditions which are favorable to the pathogenic action of the bacillus of diphtheria. It has been shown by the investigations of Roux and Yersin, of Oertel, and by clinical observation, that diphtheria is at first a local disease. In order that the bacillus may implant itself upon a mucous membrane, there must be a lesion of some kind. This lesion may be developed under the influence of certain atmospheric conditions, such as dry or moist cold, or by a sudden change in the temperature. The investigations of Brühl and Jahe with reference to the mortality from diphtheria in Prussia between the years 1875 and 1882 are very instructive in this respect. They have shown that the milder the temperature in a given locality the lower is the mortality from diphtheria. Thus in isothermic localities, with an average temperature of 6° to 7° C., the mortality was thirty-six and seven-tenths per cent., while in those of 11° to 12° C. the mortality was only ten and six-tenths per cent. In the northeastern portion of Prussia, where the changes of temperature are very sudden, the mortality is excessive; while in the central portion, where the climate is more uniform, the mortality is slight.

A. F. C.

II.—MEDICINE.

Roussel, A. E.: A Case of Chorea due to the Presence of *Ascaris Lumbricoides*. (*Phila. Times and Register*, 1890, xxi. 566.)

The patient was a white girl, six years of age. She was seen for the first time one month after the onset of the choreic movement. At that time she was rather pale and anæmic. The movements are so violent that the child has some difficulty in maintaining an erect position; the shoulders are violently jerked upward and downward, while the muscles of the extremities are in more or less constant motion. The muscles of the face are equally involved, while the movements of the tongue are so severe as to interfere to a certain extent with articulation. No heart murmur.

After a dose of castor oil, the mother noticed a small worm in the stool. She was then given small doses of calomel and santonin. In four days, six small worms were passed, and the child was much better. There were no choreic move-

ments during the night when asleep. She was now given a half teaspoonful of tincture of cinchona comp. *t. i. d.* The improvement continued, and in ten days the child was apparently well.

Dickey, W. A.: Diphtheria, with Special Reference to its Treatment with Hydrogen Peroxide. (*Ann. Gyn. and Ped.*, 1890, iv. 175.)

Whether the false membrane in the throat be the primary source of infection or the local manifestations of a constitutional disease, all agree that it is an element of great danger, and has to be removed as quickly and as thoroughly as may be, and at the same time doing as little violence to the surrounding healthy tissue as possible. The poison invades very quickly any denuded or abraded surface, consequently much care should be exercised in whatever remedies we may use.

Peroxide of hydrogen is a colorless, tasteless liquid, and when applied to a diseased membrane, causes little or no pain, and I know of nothing in the whole materia medica that will dissolve the diphtheritic membrane so quickly and thoroughly, and yet leave the healthy mucous membrane intact.

Dilute it twenty-five per cent. (although it can be used full strength), and apply with an atomizer. This can be repeated until effervescence ceases, when the membrane will be found to have practically disappeared, leaving a whitish surface. If the nose is invaded, it can be applied there with equal satisfaction. Absorb all the watery secretions from the nostrils with blotting-paper or absorbent cotton, and then apply the peroxide. After using the peroxide, use a solution of chloral hydrate, glycerin, and water, either as a gargle or with an atomizer.

At the same time, bichloride of mercury, tincture of the chloride of iron, with or without chlorate of potassium, or such other remedies which may suit the judgment of the individual prescriber, or be applicable to the case in hand, may be used. The writer prefers the bichloride.

Coupled with this should be given good digestible food at regular intervals, of which milk should form the basis, and such stimulants, from time to time, as the individual case may demand. The constitutional treatment is not less important than the local, and consequently must be attended to from the outset. When the temperature exceeds 103.5° , sponge the entire body with tepid water as often as may be necessary to bring it below this point. Pellets of ice internally will allay thirst and relieve very materially the turgid condition of the blood-vessels, and should not be omitted. Ice may also be

applied to the throat in a rubber bag or a bladder, relieving greatly the inflamed glands.

Broughton, L. G.: *The Etiology of Cholera Infantum, and its Treatment by Zinc and Sodium Sulpho-Carbonate.* (*Therapeutic Gazette*, 1870, xiv. 741.)

In reference to diet, if the stools are odorous, we have a case of albuminous fermentation, and a carbo-hydrated food is indicated, as thin starch-water, wine-whey, and crackers soaked in warm, sweet water. If, on the other hand, the discharges are odorless, we have to deal with carbo-hydrate fermentation, when an albuminous food must be given, as egg albumen, and the vegetable broths. Keep the child cool; use freely the cold sponge-bath.

In mild cases, use something like the following to a child from one to two years :

R Hydrag. chlor. mitis, gr. i;
Sodii sulpho. carb., gr. xx;
Sacch. pepsin, gr. xix;
Ft. et div. in chart. No. x.
Sig.—One every three hours.

If there is much irritation about the stomach, use a quarter of a grain of zinc. sulpho. carbolate and three grains of bismuth salicylate to each dose, instead of the sodium. If the case be very severe, and there is danger of immediate death, and the discharges are very profuse and watery, use :

R Bismuthi salicylatis, ʒii;
Zinci sulpho. carb., gr. iv;
Mist. cretæ, ʒi;
Tr. opii camph.,
Aquæ, aa ʒss.

Ft. Sig.—ʒi every two hours till bowels are controlled.

Conkling, Henry: *The Heart in Diphtheritic Paralysis, with Report of a Case.* (*Brooklyn Medical Journal*, 1890, iv. 710.)

The patient was a lad, fourteen years old, who had two attacks of diphtheria, the first two months and the second one month before admission to the hospital. At this time he was pale and somewhat emaciated. He could stand with difficulty and it was impossible for him to walk. The use of the arms was impaired. There was very little feeling on the left side, but more on the right. There was paralysis of the soft palate, and the voice was of a peculiar high-pitched character. Swallowing was painful and difficult. The urine

contained a small amount of phosphates. There was no paralysis of bladder or rectum. The reflexes were present, with the exception of the ankle-clonus and the scapular reflex. The lungs were normal.

On examination of the heart, inspection showed nothing; palpation gave feebleness of apical impulse; percussion showed slight diminution in area of cardiac dulness, and the sense of resistance seemed to be somewhat lessened. Auscultation found the first and second sounds faint at the base. There was an undulating sound at the apex; the interval between the first and second sounds was very materially lessened; the clear valvular element of the sounds was wanting; the rebound was imperfect. Now and then there was a tendency to a condition of tremor cordis. There was certainly a heart, the nervous control of which was not perfect.

The sphygmographic tracing showed a short wave of ascent, a rounded summit, a long tidal wave, scarcely any aortic notch, a long diastole, and then, what is always indicative of depression, a dip in the needle before the next line of ascent. Three ounces of pressure was used. It was evident, at the time of the examination, that the heart was the organ which must be constantly watched, and to the improvement of which all treatment must be directed. The condition in the throat excited no alarm. The loss of power in the limbs was of secondary importance.

The boy was put to bed and kept in the recumbent position. He was fed with nutritive and stimulating enemata; from time to time the best of all nerve-tonics—olive oil—was dropped upon his tongue. General and local faradization was commenced, and continued with an increasing current. As the deglutition improved, the patient was fed with the best of food in large amounts, with aids to digestion. A very liberal supply of whiskey was given,—always with the food, never alone. The simple bitters and a preparation of iron were given. He gradually improved and made a complete recovery.

Lane, W. Arbuthnot: Epilepsy following on a Depressed Fracture produced by Forceps at Birth after an Interval of Fourteen Years. (*The Lancet*, January 17, 1891.)

The patient was sixteen years of age. There was no epilepsy or insanity in the family. The child was delivered with instruments with difficulty. After he was born a deep depression was noticed on the right side of the skull, and the skin over the depression was very sore and bruised.

Nothing unusual was noted about the boy till he was fourteen, when, without any warning, he fell off his chair in a fit and was unconscious an hour. He was put to bed, and three hours later had another fit, preceded by a well-marked aura. These attacks were followed by great weakness and depression. The third fit occurred six months afterwards. This was preceded by a short but distinct aura. The fourth fit was preceded by a long continued aura, accompanied by preliminary twitching of the foot.

The fits following varied in severity and in the degree and duration of unconsciousness.

Two weeks ago he had ten severe fits occurring in one night.

When about to have a fit the boy notices a twitching at the junction of the middle and lower thirds of the leg on its outer aspect; his foot and knee then jerk in a similar manner, which, he says, resembles ankle-clonus and knee-jerk. A pain then runs up on the outer side of the leg and thigh, through the left side of the trunk into the left arm, from that into the left side of the face; and if the fit is a severe one it extends into the right arm. The twitching in the leg extends up the thigh into the left arm or left side of the face; and if the fit is a severe one it extends into the other side of the body. After the fit he feels ill and suffers from pain in the depressed area and from headache.

He is unable to walk properly for some time afterwards.

Condition on admission.—He was a pale lad whose speech was not affected and who appeared to have moderate memory and mental power. On the right side of the head there was a groove three and a quarter inches long, extending from an inch behind the coronal suture to about the same distance in front of the lambdoid suture.

The floor of the depression did not appear to be more than one-fourth inch below the level of the scalp. The left arm was weaker than the right, and its muscles smaller. The manipulative movements of the left hand were performed with distinct clumsiness. The patient states that he never had the same confidence in his left leg that he had in the right one, apart from the great weakness that was present in it for several days after a fit.

A very rapid clonus was obtained in the left foot by simply raising it to a right angle. By using more force a clonus could be produced in the right ankle. The knee reflexes were very much exaggerated. This was more marked on the left side, where a patellar clonus could be readily obtained. The plantar reflexes were much exaggerated, especially on the left side. This was also true of the abdominal except the

cremasteric. The optic disks were normal and the pupils reacted readily to light and accommodation. There was no evidence of congenital syphilis.

Operation.—The floor of the depression together with the surrounding margin of bone was removed. The bone forming the depression was very thin and vascular while the bone about the depression was of normal thickness. The floor of the depression encroached a very little upon the intracranial cavity. The dura was quite normal, as was also the subjacent brain. The bone was very vascular. It bled so freely that a drainage-tube was necessary for twenty-four hours.

Ten days after the operation he had three fits, but they were less severe than before the operation. They were not followed by the same stupid feeling, and by the headache and pain which before unfitted him for any occupation.

One month afterwards, after a long and exciting day, he had a severe fit, and was unconscious several hours.

Since that date he has had fits at intervals of a month. They are slight and cause little inconvenience. He and his friends express themselves as much pleased with the results of the operation. Since the operation he has quite lost the clonus and unsteadiness in the left leg, which gave him so much trouble, and the capacity of rapid movement of the fingers of the left hand has improved very considerably. He never suffers from headache, nor has he pain about the depressed area. He has also become much sharper and brighter and can follow an occupation.

Greene, Francis W.: Large Pulmonary Abscess following Pneumonia. (*The Lancet*, January 24, 1891.)

The patient, a boy of six years, had pneumonia of the left lung; a crisis occurred, and the temperature remained normal some time.

The posterior portion of the lung partially cleared, but the anterior portion remained solid. In the fourth week hectic set in. The expectoration gradually became purulent. In the fifth week he suddenly expectorated about half a pint of pus. For some days he had complained of pain in a spot in the anterior axillary line between the fifth and sixth ribs. There was tenderness on pressure and apparently slight bulging, though the skin was not reddened, with hollow gurgling râles over it after the abscess had burst. The author diagnosed pulmonary abscess. The physical signs for the days immediately preceding the operation were the following: The posterior portion of the chest was dull in patches, with comparatively clear spaces between them; respiratory murmur

fair with increased vocal resonance over the dull parts ; coarse, moist crepitations throughout. The anterior portion was absolutely dull, which did not change on changing position ; loud tubular breathing, audible and increased vocal resonance.

The abscess was found at a depth of about one inch ; the pleural surfaces were adherent. About half a pint of pus flowed out easily. When the abscess was empty, air escaped with each expiration. A bullet-probe was passed directly inward to the depth of four inches to measure the length of tube necessary to drain the cavity.

The wound was dressed daily. The tube was gradually shortened and removed on the tenth day. The incision was healed on the twelfth day. The boy recovered perfectly and was running about in a fortnight from the time of operation.

[A doubt may reasonably be raised regarding the diagnosis in this case. The physical signs read somewhat like those of sacculated empyema. The rapid subsidence of symptoms and the prompt recovery of the patient, would, perhaps, be more likely to follow empyema than pulmonary abscess of large size.]

England: Typhoid Fever in an Infant. (*Montreal Medical Journal*, February, 1891.)

Typhoid fever being an extremely rare disease in young children, the author has reported the present case at considerable length. The patient was a boy eight months of age, bottle-fed, small, thin, and delicate-looking, but well until the onset of this attack. He was first seen on October 2, the third day of the illness. The temperature was 102.5° F. ; the pulse 140. Believing the case to be one of entero-colitis, castor oil was given, and the diet was carefully regulated. During the next week the temperature ranged from 102.5° F. in the morning to 104° F. in the evening, the remission usually beginning after midnight. The spleen became enlarged, and could be felt as a smooth, firm mass two inches below the ribs. The liver could also be felt an inch below the costal cartilage. An eruption soon appeared upon the abdomen, chest, and back, consisting of numerous small, isolated, bright rose-spots, about the size of a pin's head, or a little larger.

The diagnosis of typhoid fever was based upon the appearance of the eruption, persistent high temperature, tympanitis, enlargement of liver and spleen, and gastro-intestinal derangement evinced by vomiting, pain, and looseness of the bowels.

During the second week the temperature ranged from 102°

to 103.5° F. Slight bronchitis developed, the eyes were sensitive to light, and there was evidently pain in the head. At the end of the third week the temperature had become intermittent, the morning temperature reaching normal on October 17.

The diet was milk, rice-water, and raw-meat juice. The treatment was symptomatic. Twelve drops of brandy were given every two hours throughout, and tepid sponging and cold to the head were systematically carried out. A full dose of quinine was given if the afternoon temperature reached 103° F. No complications or sequelæ followed, and the child made a good recovery.

Carr, J. W.: *Bronchiectasis in Young Children.* (*Practitioner*, February, 1891.)

The author reports six cases, with autopsy, of this somewhat rare disease of childhood. It is, of course, always secondary to some antecedent lung-trouble,—bronchitis, pneumonia, or pleurisy. A typical clinical history is something as follows: A child, perhaps ill-nourished or rickety, contracts measles or whooping-cough, or, as is so often the case, one soon after the other. The bronchial catarrh attending those diseases rapidly extends down in a weakened child, and sets up an acute bronchitis or broncho-pneumonia. The acute specific fever, *per se*, further weakens the child, and, if not fatal, the pulmonary mischief tends to become chronic. In fact, catarrhal pneumonia, complicating measles or whooping-cough, is prone to be subacute throughout. From all these cases combined, the elasticity of the bronchial tubes is impaired, and they become readily dilatable, and thus the train is laid for securing the rapid development of bronchiectasis.

While for convenience in description we classify separately bronchitis, broncho-pneumonia, pleurisy, etc., in reality those conditions are usually intermixed, more so in children than in adults, and most of all in young children. In them we often find bronchitis, patches of collapse, perhaps some lymph on the pleura, and at the same time diffuse broncho-pneumonia. Bronchiectasis, as a rule, results from a combination of these various causes rather than from any one alone.

It is not certain whether the pathological condition is due to passive dilatation of the bronchi or to the formation of fibrous tissue outside of them, but the author believes that both conditions contribute in nearly every instance. Chronic bronchitis weakens the elasticity of the bronchi, and catarrhal pneumonia is always accompanied by bronchial dilatation, which is increased by coughing. This dilatation, by per-

mitting retention of secretion, perpetuates the inflammation, which gradually extends to the interalveolar connective tissue, and sets up fibrosis there. This fibrous tissue contracts, and thus drags apart still farther the weakened walls of the bronchi.

The symptoms in the cases reported were variable and quite uncertain. In several there was a paroxysmal cough, but in no instance was there any foetor of breath. The temperature, unless influenced by acute inflammatory attacks, was normal, and in late stages was subnormal. The physical signs were often those of cavities, and would seem to show rapid destruction of lung tissue, but at the same time the child would gain in strength and flesh, and had no elevation of temperature. In some cases there was marked variability in the physical signs from time to time.

The prognosis, if the disease is extensive, is very bad, but must be founded on the results of repeated physical examination rather than the delusive hopes founded on improvement in the general condition. Of treatment, unfortunately, but little can be said, except to emphasize the importance of prophylaxis. The condition is a practically incurable form of organic lung-disease.

Brown, G. A. : The Relation of Chorea to Rheumatism. (*Montreal Medical Journal*, February, 1891.)

From a considerable experience with the disease, the author believes that in a majority of cases chorea is rheumatic manifestation. The rheumatism may precede, concur, or follow the chorea, which is the only disease which does so. They have a common lesion,—endocarditis. In a majority of cases there is a rheumatic history.

Barr : The Treatment of Meningitis. (*Liverpool Medico-Chirurgical Journal*, January, 1891.)

Although the same general principles of treatment may be applied to all forms of meningitis, the paper refers to simple meningitis only. The patient should be confined to a dark, noiseless room, and should be submitted to as little reflex disturbance as possible. The diet should be chiefly milk. There is no disease in which antipyretic treatment requires to be more promptly and efficiently carried out, and of all methods the ice-cap is the best. It not only lowers the temperature, but modifies the circulation of the cranium. It should be continued until the temperature is subnormal, and should be reapplied at the first return of febrile symptoms. But little dependence is to be placed in the new antipyretic

drugs. For general use the carbonate or acetate of ammonia is to be preferred. If there be any fear of the formation of thrombi in the cerebral sinuses, strong ammonia water well diluted may be given, or the patient may inhale a mixture of equal parts of chloroform and absolute alcohol saturated with ammonia gas.

In the early stages the author still has confidence in a blister applied to the nape of the neck. The bowels should be kept freely open throughout the illness, and of all agents for this purpose calomel is the best. The vomiting is of cerebral origin, and direct treatment to the stomach is generally of little avail. The hiccough of the late stages is best controlled by hypodermic injections of morphine. To relieve cerebral excitement, sleeplessness, and restlessness there is no drug equal to opium, and it may be administered freely. For convulsions inhalations of chloroform are efficacious. Bromides, iodide of potash, chloral, sulphonal, and similar drugs have been discarded by the author. Alcohol in every form is to be strictly avoided.

Full histories of seven cases, mostly children and young adults, are appended and are of great interest.

Thompson: Scarlatina in the Cow. (*The Practitioner*, February, 1891.)

The author in this paper presents a thorough review of the investigations made at Hendon, Wiltshire, and other places, regarding the relations between human scarlatina and certain diseases of the cow. He is led to believe that no evidence has been as yet presented to disprove the truth of Dr. Klein's original conclusions.

Middleton: A Case of Morphœa. (*Glasgow Medical Journal*, February, 1891.)

The case was a typical one, and occurred in a girl of eleven years. The first spot appeared in the groin fifteen months before. The number had increased to twenty and were scattered over the lower part of the trunk.

Thornton: Two Fatal Cases of Tuberculous Glands. (*British Medical Journal*, January 31, 1891.)

The first case was that of a girl eight years of age. When first seen a few glands not larger than hazel-nuts were detected on both sides of the neck, but they did not encroach upon the trachea. In spite of treatment the child wasted and died of exhaustion. Before death there was some difficulty in swallowing and expectoration of foul-smelling pus. Upon

autopsy, at the lower end of the trachea an abscess was found with two or three small glands matted together, degenerating and discharging into the upper end of the abscess cavity, the lower end of which opened into the trachea.

The second patient was a boy of eleven years. In this case the glands increased to form compact masses in both anterior triangles, but did not cause apparent pressure on the trachea.

The respiratory sounds had, however, the same peculiar harsh character noticed in the first case. Operation was refused. He suddenly died with choking and gasping while eating, there being no evidence that the food was the cause. No autopsy was permitted. The supposition is that death was caused by the sudden bursting of a glandular abscess into the trachea. It is at least certain that death resulted from sudden interference with respiration in a subject whose only apparent disease was enlargement of the glands. Whether glands be large or small, recent or of long standing, it is dangerous to delay operation when there is evidence of direct or indirect interference with respiration.

Adams: Congenital Occlusion of the Urethra. (*British Medical Journal*, January 31, 1891.)

This is a rare condition and the literature of the subject is very scanty. The diagnosis is easy, but the exact condition present is frequently uncertain. It may be a thin membranous veil that can be easily ruptured, or a gluing together of the sides of the urethra, or a complete contraction or absence of the urethra. It is frequently impossible to determine how far the obstruction extends.

If it is a thin membrane, the forcible use of a soft catheter effects a cure. In the rare cases in which the canal is obliterated for a considerable distance the treatment is difficult and unsatisfactory. Three courses are open,—namely, (1) forcing a passage by means of a covered stylet, or small curved trocar and canula; (2) perineal cystotomy; (3) suprapubic puncture. The attempt to force a passage is unsurgical and extremely uncertain. The author gives the preference to suprapubic puncture with a small trocar, and would then fix in a rubber catheter. When the child is a little older further operative procedure might be employed.

In a case reported a passage was made by means of a soft rubber catheter, as much force as it would bear being employed. It is probable that the obstruction was due to a membranous septum, but it may have been due to agglutination of the sides of the urethra.

Spencer: Death of a Child from Hydrophobia. (*British Medical Journal*, February 7, 1891.)

The child, aged five and a half years, was bitten by a dog that died two days later of undoubted hydrophobia. Two years and four months later the child was seized with typical symptoms of that disease and died. The diagnosis was confirmed by the autopsy. The case is of interest from the long interval between the bite and the death of the child. No other means of infection could be discovered, neither were there other scars on the body.

Stewart: Trismus Infantum. (*British Medical Journal*, February 23, 1891.)

The symptoms were typical and first appeared about the fifth day. The cord was free on the fifth day and the wound was perfectly clean. No cause was discovered. The case was peculiar from its long duration, for death did not occur until the child was nineteen days old.

Ness: Three Cases of Pseudo-Hypertrophic Paralysis in Brothers. (*Glasgow Medical Journal*, February, 1891.)

These patients were aged respectively eight, twelve, and eighteen years, a fourth brother sixteen years of age was healthy. The disease developed in each case at about two years. In neither patient did it show any marked peculiarity. The chief point of interest was the remarkable family history. The mother had two sisters and four brothers. Her two sisters married brothers of her husband, so that the three sisters married brothers. Each of the two sisters had a family of boys and girls, none of whom was affected with the disease. The four brothers died of the disease, two at the age of twenty, one at the age of twenty-seven, and one at an age not known. The mother had eleven cousins all belonging to the same family and bearing the same name. This family consisted of eight sons and three daughters. Two of the sons died of pseudo-hypertrophic paralysis at the ages of eighteen and twenty-one years. The others died very young, but without signs of the disease.

Nine male persons have therefore been affected with pseudo-hypertrophic paralysis, but no female has had the disease. It is clear, however, that the transmission to the patients in question was through the female, for only the mother's family has been affected. Going farther back, the transmission must have been through the maternal grandfather and granduncle. This interesting history has been investigated by the author with great care, and is presented in an elaborate table.

Strain: Syphilis and Marriage, with Special Reference to Procreation. (*Glasgow Medical Journal*, February, 1891.)

The author, in a lengthy paper, divides syphilitic cases, according to the mode of infection, into five classes. Class I. comprises cases in which both man and woman have contracted syphilis by chancre, and Class II., in which the woman alone has had chancre. In these the result on procreation is similar and is very disastrous. It seems frequently to entirely destroy the conceptive power, or, if conception take place, abortion or a syphilitic child is the result. In Class III., where the man has had chancre and the woman is infected through the foetus, and also in Class IV., where the man has had chancre and the woman shows no manifestations of infection, the power of conception seems to be but little affected. The result on the product of conception is, however, very serious. Miscarriages and stillbirths are frequent, as well as children who die soon after birth. Many children are born at or near full term who develop syphilis from which they recover. When the infection of the father has taken place four or more years before marriage and the mother has escaped the disease, children may be born who never show any of its manifestations. Class V. embraces cases of hereditary syphilis. The author is strongly inclined to believe that the remarkable tendency to destroy, or weaken, the reproductive power manifested by the syphilitic poison extends to the next generation. In persons who have inherited syphilis, but have survived, the reproductive power certainly seems to be affected, as shown by barrenness and frequent abortions.

Kromayer: The so-called Catarrhal Pneumonia which follows Measles and Whooping-Cough. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

The author's investigations were made upon nine cases, which he has arranged in two groups, and showed the following data:

1. The individual foci of disease in the lungs were not larger than a pea. The alveoli contained round cells or epithelia or both mingled with a small quantity of blood and fibrin. These foci were caused by the obstruction of a small bronchus with subsequent atelectasis and inflammation or by the reception of infectious material within the alveoli. Those foci which formed in the vicinity of the pleura always extended as far as the pleura.

2. The foci in this group were larger than those in the first, the connective tissue around the bronchi was increased and rich in nuclei, and the connective-tissue proliferation extended to the nearest alveoli and infundibula. Peculiar to these foci

was the occurrence of giant cells, without tubercle bacilli, and atypical epithelial proliferation. The numerous giant cells, which always lie in the alveolar spaces, are caused either by the cohesion of epithelial cells which had been cast off, or by flat epithelia which came from the alveoli. They may be enormously large, filling an entire alveolar space, and composed not alone of round epithelial cells, but also of blood-corpuscles and detritus, or they may be the result of proliferation of cubical epithelium, as Friedländer has supposed. This author has described atypical epithelial proliferations, which proceed from cylindrical bronchial epithelium at certain points where proliferating connective tissue adjoins the smaller bronchi. Kromayer has not recognized the association of these proliferations with cylindrical epithelium, but he believes that the explanation which has been given is the correct one, and that it is possible that these atypical epithelial proliferations may signify a regeneration of the changed alveoli. The parenchymatous processes around the bronchus in the foci of the second group are independent of the interstitial inflammation of the connective tissue accompanying the bronchus and between the peripheral foci, if they are not of very great extent, and the pleura is always found as air containing interstitial tissue. The first and oldest interstitial processes commonly begin at the point of division of a bronchus. Interstitial peribronchial inflammation is not only the cause of the pneumonic dilatation of the alveolar spaces, but also the cause of the continued presence of this exudate, since through the agency of the proliferating connective tissue the lymph-vessels are partly obliterated, and partly limited in their capacity for absorption. In a disease of this character which runs a chronic course such an explanation as has been given explains the development from pneumonia in children of bronchiectasis, cirrhosis, and phthisis better than the supposition that there is a merely superficial inflammation.

A. F. C.

Babés : The Bacterial Relations of Tuberculosis. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

The author's bacteriological investigations have a particular interest to pediatricists because they were made upon the pathological material of the Children's Hospital at Pesth, and also demonstrated certain peculiarities in the clinical course of tuberculosis in children. The author found that tuberculosis itself seldom led to a fatal result, but that in most cases there were with the bacilli other pathogenic micro-organisms in the accumulations of the tuberculous disease or in the organs in

general. By the increase of the micro-organisms in the tuberculous tissue the latent pulmonary phthisis may be awakened, and then will rapidly follow the softening and destruction of the tuberculous products and the extension of the disease to surrounding tissues. Or, these pathogenic micro-organisms before mentioned may remain limited to the tuberculous tissue, and form there with the tubercle bacilli particular products, such as the suppurating material in tubercular meningitis. In most cases the primary tuberculous focus is simply the avenue of entrance through which the most of the group of micro-organisms belonging to the pyogenic cocci force their way into the body, proliferating from this starting-point, and occasioning septic or hemorrhagic processes, fatty degeneration of parenchymatous organs, and then a quickly fatal result. Clinically, the last-mentioned process would be considered an acute exacerbation of a chronic phthisis, or one which had become latent for a second time, and not infrequently is it associated with scarlet fever, measles, or some other acute infectious disease. The author's investigations have been very extensive and cannot receive justice in a brief abstract. They are of the greatest importance with reference to the clinical course of tuberculosis, and will give rise to further investigations in this direction.

A. F. C.

Hayem : *Anæmia in Infants.* (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

The blood of the new-born is much richer in red corpuscles than is that of the adult. After a few days the number diminishes, and during the period of nursing is about half as great as in adults. The chief causes of anæmia in nursing infants are syphilis and digestive disorders, especially those in which there are green stools. The pathological changes in the red corpuscles in children are, as a rule, the same as occur in adults, only in the anæmia of children there are very large blood-cells which are either absent in the adult or occur only in exceptional cases. Also numerous red corpuscles with nuclei are to be seen which in adults are seldom seen except in cases of leucocythæmia. In the blood of the new-born these cells are found at times when anæmia is not pronounced. These red corpuscles contain a nucleus of varying size, sometimes presenting as many as three processes. The large nuclei are found, as a rule, in the blood of children suffering with enlargement of the spleen. The presence of anæmia and leucocythæmia in the new-born offers peculiarities which are interesting with reference to the physiology of the blood. In human beings the nucleated red corpuscles are no longer found

at the end of the seventh month of life. The organs which form these cells are certainly less inactive in childhood than in adult life. The spinal cord especially remains red and rich in blood-corpuscles in the new-born, while at a later period it is fatty and poor in these elements. The occurrence of nucleated red corpuscles in the blood of adults is always to be considered a very bad symptom, while their presence in the blood of the new-born has no such serious significance.

A. F. C.

W. Koch: 'The Different Forms of Blood-Disease. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

The author considers the different forms of blood-disease, —scorbutus, purpura simplex, purpura rheumatica, purpura hæmorrhagica, erythema nodosum, hæmatophilia, nosebleed, bloody perspiration, and fatty degeneration of the new-born, —as different localizations of the same disease, which may be acute, subacute, or chronic, remittent or intermittent, congenital or acquired. In all cases, however, we have only a form of scorbutus. With regard to complications, scorbutus may coexist with another disease, or be engrafted upon a pre-existing disease, or there may come with it a new disease of an infectious character, which may be developed in connection with certain faults of nutrition. No one has succeeded in finding a microbe of scorbutus, and the author thinks that the disease cannot be attributed to such a source, but to certain products of tissue-change. A similar view is held by the author in respect to hæmatophilia, which is probably not due to conditions of heredity, though there may be lesions which cause it, and which reappear successively in several generations. The effect which is usually attributed to the antiscorbutic means of treatment is not accepted by the author. He recommends a milk diet, the internal use of tincture of iodine and alcohol in large doses, and objects to the use of substances which are rich in potash, believing that they are injurious.

A. F. C.

Ashby: *Points in the Pathology of Paralysis occurring during the First Two Years of Life.* (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

Meningeal hemorrhages and inflammatory affections of the brain, spinal cord, and their membranes predominate in the early period of life as causes of paralysis in distinction from the extensive cerebral hemorrhages and the different forms of softening, which are the common causes in adult life. The paralyzes which occur in the first two years of life are classified with the following causes:

1. Intra-uterine lesions,—meningo-encephalitis.
2. Meningeal hemorrhages.
3. Syphilitic arteriitis and softening.
4. Acute cerebral paralysis,—encephalitis and embolism.
5. Acute spinal paralysis,—poliomyelitis anterior.
6. Peripheral paralysis.

Under the head of meningeal hemorrhages, the author includes as causative every condition which may produce asphyxia in children. He thinks the delicate vessels of the pia mater are not able to withstand venous stasis and elevated blood-pressure. If there are attacks of eclampsia and hemorrhage in the brain, one cannot say whether the latter are the cause or the result of the eclampsia. In a fatal case of syphilitic disease of the brain, arteriitis of the vessels of the pia mater was found, and superficial softening of the gray substance of the brain. With reference to acute cerebral paralysis, it is observed that children may suffer with convulsions, fever, and coma, that no paralysis may follow, and that the children may become idiots. In such cases the process may be the same as in polio-encephalitis, but not localized in the motor areas of the brain.

A. F. C.

Fische: Cortical Epilepsy of Congenital Syphilitic Origin. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

The author was induced to collect all the recorded cases of syphilis of the central nervous system of congenital origin after seeing the following case: A young lady was infected by her husband, who was suffering from syphilis in its first stage, and soon afterwards became pregnant. During her pregnancy the phenomena of general syphilis appeared, and in the seventh month of gestation she gave birth to a dead fœtus. Her second conception occurred nine months subsequently, and resulted in the birth of a male child at term. This child showed no evidence of syphilis, but suffered with divergent strabismus of the left eye. When two weeks old he had coryza and catarrhal conjunctivitis; in the fourth week there was a severe attack of eclampsia, and fourteen days later a macular syphilide, with osteochondritis in several of the epiphyses. During the next six months he received careful antisymphilitic treatment, and at the end of that period the only apparent lesions were anæmia and enlargement of the liver and spleen. The intellectual development of the child was slow and defective,—he remained foolish and irritable. A second child was born at term without apparent evidence of syphilis, and after he was one month old he received twenty-five inunctions of mercurial ointment of five decigrammes

each. At the age of four months he suffered with painful muscular contractions in the right lower extremity, and then, without premonitory symptoms, there was a sudden attack of contraction in the entire muscular system, which lasted two or three minutes. There were also anæmia and enlargement of the liver and spleen. While under treatment with iodide of potash there were eight or ten attacks of spasmodic contractions daily, but these soon became less frequent, more intense, and of longer duration. The intellectual development of the child was satisfactory. If the child happened to be seized with cramps while walking, he would fall forward, stretch out the leg which was cramped, and cry lustily. There was no disturbance in motility, sensibility, temperature of the skin, electrical reaction, or reflexes. The seat of his disease was in the cortical centre of the right lower extremity, in the central convolutions of the left side, and the paracental lobule. No case with a similar set of symptoms has been found in the recorded literature of hereditary syphilis. Examples may be found of brain-disease as the first or only symptom resulting from hereditary syphilis, and these have been collected by the author and divided into three groups.

The first group includes cases of inherited syphilis of the central nervous system, with phenomena characteristic of the disease upon the skin and mucous membranes, these phenomena appearing during the first weeks of life; also with syphilitic epilepsy, hemiplegia and paraplegia, meningitic symptoms, hydrocephalus, idiocy, dementia, and various diseases of the nervous system, including convulsions, paralysis of the muscles of the eyes, nystagmus, pains in the head, multiple sclerosis, tabes, etc.

The second group includes cases of inherited syphilis of the central nervous system, with so-called symptoms of late hereditary syphilis,—their subdivisions being made as in the first group.

The third group includes only those cases which have a fatal issue, and concerning which no marked symptoms have appeared during life.

A. F. C.

Brandenburg: Tuberculosis in Early Childhood, with Special Reference to so-called Heredity. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

The proposition is advanced as tenable that a real hereditary tuberculosis can occur either from tuberculosis of the ovum, of the fructifying semen, or *in utero* from tuberculosis of the mother. The author is inclined to accept the view of Wolff, based upon experimental investigations, that a trans-

mission of tuberculosis to the foetus during conception is improbable. On the other hand, tuberculosis of the foetus might arise from conditions in the uterus, in the placenta, or in the general condition of the mother.

No account can be taken of an hereditary disposition, because there is always the probability that the delicate children of phthisical parents may have acquired their tuberculosis by intimate association with them after birth.

At the Basel hospital for children, between the years 1870 and 1888, there were two hundred and three cases of tuberculosis in children under four years of age. Of this number, one hundred and forty-one died and were submitted to autopsy; the remaining one hundred and sixty-two were cases of bony tuberculosis, and were the subjects of operations. Of the entire two hundred and three cases, thirty-four per cent. came from tuberculous families. In forty-four per cent. of this latter number there was a history of pulmonary phthisis; and in thirty-four per cent. there was tuberculosis of the bones. In forty-three per cent. of the entire number of children there was tuberculosis of the bones; in thirty-one per cent. there was miliary tuberculosis; in twenty-one per cent., tuberculosis of the lungs, and in the remaining four per cent., tuberculosis in different organs. The first year of life included eighteen per cent. of all cases, the second forty-two per cent., the third twenty-one per cent., and the fourth nineteen per cent. In sixty-five per cent. of those who died from pulmonary phthisis, there were gastro-enteric phenomena during life, and in thirty-five per cent. there was swelling or caseation of the mesenteric glands. In such cases it is believed that cow's milk plays a very important rôle as a source of infection.

The statistics concerning tubercular basilar meningitis give the following data: In one-third of all the cases there was probability of infection within the family; in two-thirds of the cases there was caseation of the bronchial glands. In seventeen per cent. there were operations on tuberculous bones, and in eight and three-tenths per cent. of those who were not operated upon, the bone-tuberculosis resulted in basilar meningitis. In sixteen per cent. of the cases there was miliary tuberculosis, three-fourths of them showing cheesy bronchial glands. In less than fifty per cent. of the cases the source of the general infection was in a cavity in the lungs. Tuberculous bone-diseases are especially prevalent in the first and second years of life. In one-third of all the cases the source of infection is within the family. Traumatism preceded tuberculous bone-disease in twenty per cent.

of cases, especially in connection with spondylitis and coxitis. In all but two of the cases of bone-disease which were examined post mortem there was tuberculosis of the lungs, pleura, or other organs. There is an undoubted relation between operations for tuberculous bone-disease and general infection, especially if the operation be resection of the hip-joint. In twenty-one per cent. of all tuberculous cases, rachitis was present. The author's investigation did not demonstrate the influence of heredity in the particular sense of the term, but in thirty-four per cent. of cases there was a chance for infection within the family, and the opinion was reached that tuberculosis might arise by direct infection. A. F. C.

III.—SURGERY.

Keen, W. W.: Craniectomy for Microcephalus; the Later History of a Case of Excision of the Hand-Centre for Epilepsy. (*Phila. Med. News*, 1890, lvii. 557.)

The condition of the little boy who was operated upon for epilepsy about a year ago is much better, although he is not completely cured. The fits have been far less severe and less frequent than before the operation, and his disposition is very greatly improved. He is more amenable to control, so that he can now play with other children. He is interested in matters of every-day life almost as much as one would expect in a child of his age. His vocabulary also is now quite large, and he is learning quiet kindergarten plays, which he would not have touched or looked at in his restless impatience a year ago. For some weeks after the operation the hand was completely paralyzed, but later it gradually recovered, and is now only slightly paretic. He can feed himself without difficulty.

CRANIECTOMY FOR MICROCEPHALUS.

Lannelongue, of Paris, has done this operation twice. The first case was a girl, four years of age. A narrow strip of bone was removed from the left side of the sagittal suture, as the left side was smaller than the right. The bone was removed a finger's breadth from the middle line, and was three and one-sixteenth inches in length and one-fourth inch in breadth. In five weeks the child was calmer: the incessant cries had ceased the day after the operation; she took notice of what went on about her, laughed and seemed happy, comprehended what occurred, tried to talk, and pronounced several words. She can now stand alone;

she walks with regular steps, tottering a little when she hastens. She no longer drools. Her intelligence seems to have kept pace with her physical improvement. She is now able to eat at the table. The second case was more pronouncedly idiotic. The incision to the left of the middle line was the same, but another similar portion of bone was removed from the frontal on the left side, leaving a little bridge at the fronto-parietal suture. In this case, the time after the operation is too short to judge of the result.

The patient under consideration is a girl four years and seven months old. There are no contractures or paralyses. She has a plainly idiotic face, and is constantly moving and wringing her hands, but evidently not from pain. She drools a good deal. She watches strangers somewhat, but notices little else. All the sutures are firm. She has "drowsy spells" from time to time, often several times a day, when her head falls over and she sinks down almost asleep, but awakens immediately and is as well as ever. Sometimes she is brighter than at others. Measurements: head—antero-posterior diameter, $6\frac{1}{6}$ inches; biparietal, $4\frac{1}{2}$ inches; biauricular, $4\frac{9}{16}$ inches; bifrontal, $3\frac{3}{4}$ inches. Circumference of head, $17\frac{1}{8}$ inches. Lannelongue's operation was done with slight modifications, and no bridge of bone at the coronal suture was left. The object of the operation is to make the side of the head, as it were, into a bony flap, with an attached base below and a free border above. The operation took an hour. She was entirely well and all the sutures were out in five days. As soon as a proper time has elapsed, a report will be made upon any change which may have taken place in her intelligence.

Gibney, V. P.: *Pott's Disease of the Spine.* (*Phila. Med. and Surg. Rep.*, 1890, lxiii. 665.)

1. The treatment of Pott's disease of the spine should be the application of a perfectly-fitting splint to the back so as to avoid all friction or irritation from the slightest movement.
2. The splint should be removed very infrequently, and as a solid plaster-of-Paris jacket well applied must necessarily remain on a long while, this makes the best appliance for the average surgeon to employ.
3. The jury-mast or head spring should be used where the disease is above the eighth dorsal.
4. Abscesses should be treated according to circumstances. No hard and fast rule can be laid down for their management. When they are opened, antiseptic precautions must be observed, not only at the time of opening, but on many subsequent dressings.
5. It requires from two to four

years to effect a cure in this disease. 6. The appliances should be such that the patient can have the benefit of fresh air, an out-of-door life, and the best climate possible.

Pitts and Brook: Stenosis of the Trachea and Larynx following the Use of a Tracheotomy-Tube. (*The Lancet*, January 17, 1891.)

It may be stated, without much fear of contradiction, that when ordinary means have been used to leave out the tracheotomy-tube, intubation by O'Dwyer's method should be at once given a trial, and that if difficulty arises, or no definite improvement speedily ensues, then a thorough exploration of the parts should be made; cicatricial tissue should be freely and completely removed, and then intubation again be tried without allowing time for recontraction. In the intubation for chronic stenosis—

1. A certain amount of force is absolutely necessary, and if used in the right direction can be safely employed.

2. A much larger tube can be tolerated than is laid down for the treatment of acute cases.

3. The tube may be left in longer. One case wore it a fortnight without inconvenience.

4. In all cases when the tube is to be left in longer than twelve hours the string is removed.

5. Pulp food was found to be the best kind at first, but ordinary diet was taken without trouble after a short experience.

6. The special difficulty of extraction because of the long tubes employed is overcome by having a shorter beaked extractor.

Remarks are made on the instruments used, the present position of intubation, and on the statistics of results of intubation in diphtheria in London hospitals.

Recoveries follow in from forty to forty-three per cent. These are more favorable than those usual after tracheotomy, since twenty-five per cent. recoveries after tracheotomy may be considered good.

A few of the arguments against intubation in diphtheria are:

1. It does not give that complete rest to the larynx that is obtained after tracheotomy.

2. If there is much membrane in the trachea it cannot be cleared out by forceps in the way that is most desirable after opening the trachea. It is, however, astonishing what large quantities of membrane may be coughed up by the child through an intubation-tube or after its expulsion.

3. The presence of a tube fixed tightly in an inflamed

passage may of course, in such a disease as diphtheria, aggravate the local mischief or produce ulceration at any of its points of contact; and physicians who examine the fatal cases in the post-mortem may well draw unfavorable conclusions. Fortunately such ulceration is not of very frequent occurrence.

4. The frequently-mentioned objection, and one which is especially in the thoughts of a beginner at intubation, is that of the possibility of detaching membrane, and pushing it before the tube, and so making a destructive flap. This the authors believe uncommon, yet no one should do intubation without being prepared to proceed to tracheotomy if required.

It seems to the authors that (1) tracheotomy is advisable in those cases where there is evidence of great malignity, or of a tendency to great extension of membrane; (2) that intubation should be employed in cases which present themselves with dyspnoea as the most marked symptoms of the disease; that it should be employed at an early period, and that, should there be necessity for retaining the tube for a lengthened period, or evidence of any direct irritation set up by it, then tracheotomy should be substituted, and we may here remark that tracheotomy is rendered safer and easier of performance when an intubation-tube is *in situ*.

Lockwood: Acute Intussusception. (*The Lancet*, January 24, 1891.)

The author reports a case of acute intussusception in a child four years old, in which resection was performed, and death resulted from shock twenty hours after operation. The child had been seized with purging and vomiting five days previously, but no blood or slime was passed with the motions. The abdomen became distended, but nevertheless a tumor about three inches long could be felt in the right iliac fossa. An intussusception was diagnosed, and the abdomen opened by an incision in the right linea semilunaris.

There was slight peritonitis, and invaginated bowel, which was part of the ilium, was firmly adherent to its ensheathing intestine (which was also ilium), and the peritoneum split at every attempt at withdrawal. It was therefore decided to resect the intussusception; and with this end in view the peritoneal sac in the neighborhood was washed with sponges, and the intestines above and below the diseased part controlled by an elastic band. The intussusception and a wedge of mesentery were removed; and after the distended intestines had been emptied of flatus and fæces, suturing was done by the Czerny-Lembert method. The abdomen was irrigated with hot water, but this increased the shock instead of diminishing it. There

was exhaustion before the operation, and considerable collapse after it was finished, and from the latter the child never rallied, and died twenty hours after the operation.

The examination showed that the lumen of the bowel was quite pervious and that the line of sutures was secure. In commenting on this case, the fatal result was attributed mainly to the length of operation. The emptying of the distended bowel was of great importance, both as an aid to the performance of the operation, and as adding to the security of the stitches and relief from obstruction.

The literature of the subject seemed to show that out of fifteen cases of resection of intussusception three had recovered.

In the discussion following, it was brought out by Mr. Howse that puncturing the intestine to allow the escape of flatus was an unsafe proceeding, as thin feculent matter was apt to ooze from the pricks, and the punctures did not admit of easy suture. Mr. Barker alluded to a method of treating these cases where the intussusception could not be reduced. A longitudinal incision should be made through the intussusciens, and then the inner intussuscepted part should be cut away, the original incision being closed with sutures. The natural process of cure was thus imitated, but he had not had an opportunity of trying it.

Swain: Malformed Anus and Lower Bowel; Colotomy; Plastic Operation on Anus; Cure. (*The Lancet*, January 17, 1891.)

Such a condition as that described below as a cause of chronic obstruction of the bowels at the age of this patient is almost, if not quite, unknown, for, as a rule, patients, the subjects of these malformations, undergo operation in early infancy. The treatment of this case was very successful.

The patient was a female, aged six years. Her mother stated that she was born with a small misplaced anus, from which a slight fecal discharge was constantly oozing. For several years she had had a swollen abdomen.

On admission the patient was a large, pale-faced, emaciated child. The rectum opened by a small orifice on the posterior wall of the vagina just within the sphincter vaginae. The opening barely admitted the tip of the little finger. There was a large swelling in the abdomen, extending up out of the pelvis into the hypogastrium, and thence upward along the right side of the spine to the right hypochondriac region, from which it passed across the epigastrium to the left hypochondrium, where it ended. It gradually tapered off from the beginning. It was hard, but could be indented by the fingers.

There was no accumulation in the normal position of the descending colon.

Colotomy was attempted in the left loin; but the colon could not be found, and the wound was closed up again. About a month later, the abdomen having become much more distended; an opening was made in the right iliac region, and the operation completed one week later by opening the intestine. After this for weeks there was an enormous evacuation of faecal matter. The faeces were washed out daily from the colotomy wound by a catheter passed through the anal aperture. Much of the faecal matter was so hard that it had to be removed under anaesthetics by the finger and scoop.

Three months after this operation methylene was given and the rectum dissected off the posterior vaginal wall for over two inches. An incision was made in the perineum from the back of the vagina to rear of the coccyx. The anus was then stitched as far back as possible and a new perineum made between the anus and vagina. Considerable traction was required to drag the rectum down to the level of the skin of the perineum.

The opposing surfaces of the new perineum united fairly well. The index-finger was passed daily into the anus to keep it patent. By keeping the motions loose by castor oil the bowel came gradually to act through the anus, and the inguinal wound gradually closed up.

Ten weeks after the operation the faeces passed the natural way by the help of a daily enema.

Five months after the operation.—Bowels act nearly every day and only require opening medicine occasionally. She has complete control, except after a dose of castor oil, when there is slight staining of the diaper. There is no discharge from the vagina. There is no collection of faeces felt on palpating the abdomen. The inguinal colotomy wound is quite healed, and at its site there is a little tendency to hernia. The index-finger passes easily into the rectum. Just inside the vaginal wall there is a small fistulous opening into the rectum.

There is a small perineum between the vagina and anus.

Little, E. Muirhead: *On the Causes of Rotation of the Vertebrae in Scoliosis.* (*The Lancet*, January 24, 1891.)

The question, What is the cause, or what are the causes, of rotation of the vertebrae in scoliosis, or so-called lateral curvature of the spine? has always been a troublesome one to answer.

The author has made some observations on the spine in children and young adults in order to find out under what

circumstances, if any, rotation can occur in the dorsal and lumbar regions of the column.

The first observation was made to ascertain whether rotation normally accompanies lateral flexion.

It was found that rotation apparently occurred, but that this appearance of rotation was due to muscles on the convexity contracting to support the trunk, and that it did not appear when flexion was produced voluntarily or passively in the prone position, although the flexion was such that the spinous processes deviated from the straight line as far as in extreme scoliosis.

Lateral flexion in the dead body was next examined. On forcibly bending the body laterally, no rotation accompanied the movement.

The anterior common ligament was divided, and finally the intervertebral disks and posterior common ligament, without, however, succeeding in producing any evident rotation.

The next experiments were undertaken with a view to determine the effect of vertical pressure on the spinal column in producing flexion and, if possible, rotation. The dorsal and lumbar regions, removed *en masse*, were subjected to pressure applied by means of a screw. A single general curve was the result without rotation.

The twelfth dorsal vertebra was then held in the middle line by a cord and pressure again applied. A double curve was thus produced. There was no rotation.

The effect of fixing the spinous processes in the middle line and applying pressure was examined. No rotation was produced.

The anterior common ligament, the disks, the posterior common ligament, and all the tissues between the transverse processes were removed, but the result was still negative. The principal obstacles to this rotation appeared to be the articular processes, which obstacle was overcome by the overriding of the superior by the inferior processes of the vertebræ next above, with consequent separation of the vertebræ. In the spine with the ligaments intact, the greatest twisting force that the author could apply with his hands did not produce at most a greater rotation than 25° .

It would thus appear that, while a certain limited amount of rotation is possible in the normal spine, it is not a normal accompaniment of flexion, and, indeed, that it is difficult to produce artificially.

The author infers from these observations that there is some pathological condition present in scoliosis from the first, which allows of the gradual production of rotation, and this condi-

tion he believes to be a certain tendency of the ligamentous structures to yield.

This is not sufficient to account for rotation, and we must look to the muscles for explanation.

When the muscles act equally, there is no tendency to produce rotation. When, however, there is a lateral yielding, the muscles on the convexity alone are called into action ; and, although they tend to straighten the spinous processes, they have a distinct rotatory action, which, long exerted on a column whose fibrous tissues are inclined to yield, produces a twisting, their action being unbalanced by any muscles on the anterior portion of the spinal column.

It is probable that some alteration in the nutrition of the bone occurs, but the author is not aware that any direct evidence of this has been produced.

Pollard : Spontaneous Dislocation of the Hip ; Reduction ; Suppuration in the Joint. (*The Lancet*, January 24, 1891.)

The patient was a girl six years of age. Her illness began with pain in the arm followed by fever and delirium. She became very drowsy ; temperature rose to 104.8° F. On the fourth day of illness an incision was made on the outer side of the humerus through the tissue of the uniformly swollen and indurated arm. No pus was found, although the periosteum was raised from the bone all round. There was improvement lasting one day only. The swelling of the arm increased, extending upward and downward.

On the fifth day after admission an incision was made downward to the bone along the posterior border of the deltoid muscle, and half an ounce of pus was evacuated. There was gradual improvement. On the sixth day the child began to have pain in the left hip and thigh ; and the next day there were distant signs of inflammation in the joint.

On the thirtieth day after admission the left hip presented all the typical signs of dislocation on to the dorsum ilii. The dislocation was readily reduced by manipulation under chloroform, and secured in its proper position by means of a Liston's long splint.

The temperature gradually reached normal and the swelling in the hip subsided by the forty-ninth day. Some fulness again appeared about the joint, and the temperature rose again. On the sixty-first day after admission the hip-joint was opened by the anterior incision, and some pus evacuated.

The epiphysis of the head of the femur was not loose, and the cartilage appeared to be healthy. The temperature became

normal three weeks later. One month afterwards the wound was healed. Four months after admission three small sequestra were removed from the humerus. The child was sent to a convalescent home six months after admission.

At present there is no shortening of the limb, and the movements at the joint are free in all directions.

Remarks.—The case presents several interesting points. The primary focus of disease on the surface of the humerus was limited. Yet the child was so ill that for ten days it was thought that it could not recover. The left hip was dislocated owing to softening of the ligaments and acute distention of the capsule with fluid. The exudation at that time was apparently serous, for the child improved. More than a fortnight elapsed between the reduction of the dislocation and the onset of symptoms suggestive of suppuration in the joint. The recovery of the joint has been so complete that the child walks without the least limp. That such a perfect recovery has occurred after suppuration in the hip-joint is due to the fact that the disease was not, as is usually the case, of a tubercular nature. It is desirable that a careful differentiation should be made between pyæmic and tubercular arthritis, for while the former may be cured by simple evacuation of the pus, the latter will usually need an extensive removal of the diseased tissues in order to secure a rapid recovery, and even then the function of the joint will be greatly impaired.

Marsh: Intussusception in a Child of Nine Months; Abdominal Section; Recovery. (*The Lancet*, February 14, 1891.)

A well-nourished child, aged nine months, was taken ill on the previous evening, when he began to vomit. He was admitted the next day. Upon admission he was collapsed; the pulse quick and feeble. The abdomen was somewhat distended, and a sausage-shaped tumor could be felt extending across the abdomen a little above the level of the umbilicus,—that is, in the region of the transverse colon. The condition of the child was so grave that the abdomen was opened at once without resort to injection or inflation of the bowel. Reduction was effected partly by pushing and partly by drawing the volvulus out of its sheath. The child did well; and was discharged with the wound quite healed three weeks later.

Remarks.—The experience of the author convinces him that when the operation is performed early, it is not in itself a proceeding that involves serious danger; and, secondly, that it is followed by a very large proportion of success.

The grounds for advocating early operative interference are

that the conditions present are very similar to those of hernia. The necessary interference consists first in taxis, and if it fail, immediate operation.

The treatment of intussusception should be pursued on exactly similar lines. The evidences of intussusception—gripping pains, sickness, the passage of mucus and blood, and the presence of a sausage-shaped tumor—are usually distinct, while often the intussusception can be felt by examination by rectum. Thus a correct diagnosis can in the majority of cases be made at once.

The author employs abdominal taxis, by placing the patient under chloroform and allowing warm water to flow into the bowel by means of a soft rubber tube with funnel attached. This operation must be done with care. The amount of fluid must be observed and the height of the column of fluid must be guarded.

Should taxis fail to effect reduction, abdominal section should be at once performed.

Reduction is then best effected by taking the sheath *in situ* just below the advancing end of the tumor, between the index and middle fingers, and exercising gentle pressure upon it, and shifting the fingers and repeating the pressure so as to lift the intussusception upward and make it “back out.” By this means the tumor may usually be quickly reduced until only the entering end remains. When this is the case the intussusception should be brought forward into the wound, so that reduction may be completed partly by pushing the intussusceptum out by pressure on the sheath, and partly by very gentle traction upon it. The writer is convinced that in the majority of cases reduction can be easily effected in this manner, if the intussusception has not been strangulated for more than ten or twelve hours; but if strangulation has existed for eighteen hours and upward the reduction is likely to be difficult and will often be impossible. Two cases are referred to: they were very unpromising, but both made good recoveries after abdominal section.

That failures have hitherto been frequent has been, the author thinks, quite certainly due, very largely, to the circumstance that the operation has been delayed until the local conditions—swelling, inflammatory softening, and adhesions—have precluded success. These conditions are not usually present in the first twelve or the first eighteen hours. Yet the author has found one case in which they were present, after the intussusception had apparently only existed fifteen hours. The possibility of this rapid formation of adhesions is an additional reason for early interference.

The author has recently examined the specimens in the museum of St. Bartholomew's Hospital, with a view of ascertaining whether, when it is found that the head of the intussusception is so large and firm that it cannot be returned, it would be possible with safety to divide the sheath at the seat of constriction, and then, having effected reduction, to close the wound in the sheath by suture.

This point, however, is one which can only be determined by trials made in what may seem to be appropriate cases at the time of operation.

Johnston: A Case of Spina Bifida. (*Montreal Medical Journal*, February, 1891.)

The specimen was from a fœtus of about six months. The extremities were well formed, but there were marked acrania and a decided angular curve of the spine forward. Embryos in the earlier stages showing this deformity would prove of value in settling numerous questions regarding spina bifida as well as certain disputed points regarding maternal impressions. The author urges that any such specimens be carefully examined and reported. They should be preserved by at once placing them in strong alcohol for a few hours.

Stewart: Excision of the Sac in a Case of Spina Bifida. (*British Medical Journal*, February 21, 1891.)

The patient was the eighth child, and was born after a normal labor. A tumor, the size of a hen's egg, was found in the lumbar region. At the most prominent part it was membranous and semi-transparent, with leashes of blood-vessels coursing over it. The gap in the bone was so small as to be easily plugged with the tip of the forefinger. Manipulation showed that there was a pedicle. The child was healthy and strong and evidently a suitable case for operation. Two flaps of healthy skin were dissected from the sac and a ligature of chromicized gut placed around the pedicle. After opening the sac and finding that no nerves were present, the ligature was tied, the sac cut away, and the flaps sewed together. The wound healed by first intention. The child had also a hypospadias of moderate extent.

O'Neill: The Radical Cure of Hernia in Children. (*British Medical Journal*, February 7, 1891.)

In the author's opinion the most suitable cases for operation are: 1. The children of the poor who are unable to procure proper trusses or those who cannot look properly to their

daily application. 2. In children with a hernia so large that an ordinary truss is not able to keep it reduced while the child is running about at play. 3. In most cases where a truss has been worn for a year without improvement. 4. In children who may in after years have heavy work to do. 5. In each case where herniotomy has been performed for the relief of strangulated hernia.

In deciding upon the method of operation, each case must be treated on its merits, and this cannot be decided until the sac is exposed. If the sac can be easily separated entire, and is congenital, Macewen's method is best. If the sac has been torn and the wound is not easily closed, Bank's method may be selected. This consists in ligaturing the sac close to the neck and cutting it off half an inch below the ligature, and suturing the upper end of the sac to the abdominal muscles above the internal abdominal ring. Barker's method may also be used, by which the sac is ligatured in two places and divided between the ligatures, the upper part being sutured to the abdominal muscles and the lower part being retained in the scrotum. Ball's method is also applicable in the same condition. By this method the sac is twisted several times and a ligature placed close to the neck.

The conditions to be observed to insure success are: 1. Prepare the patient several days before the operation. To accomplish this give a warm bath daily, keep the bowels free, give a milk diet, and keep him in bed. 2. Arrest all hemorrhage. 3. Drain the wound with bone drainage-tubes. 4. Use chromicized catgut for all sutures and ligatures. 5. Bind the dressings on firmly with india-rubber web bandage. 6. Dress the wounds seldom and only when the discharges stain the outer dressings, or when the temperature rises suddenly above 101° F. 7. Give an opiate at night. 8. Give an anæsthetic for the first two dressings to prevent the child from straining.

Parker: Hernia in Children. (*British Medical Journal*, February 7, 1891.)

Operation is advised in all cases of congenital hernia which persist after two years, if they are large and have resisted other means of treatment. Thorough and persistent efforts should have been made for at least six months before operation is attempted.

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HERNIA IN INFANCY, AND ITS TREATMENT.

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(Concluded from April number.)

IN the first part of this article I endeavored to point out some of the most important diagnostic landmarks and complications of hernia of infancy; this part will be devoted to the consideration of its practical treatment.

In the cure of hernia of infants we have two methods at our command,—viz., surgical and mechanical.

The mechanical treatment will be considered first, and more at length, not only because it is believed to be the better method, but for the reason that many can carry it out who would not resort to a surgical operation. To the over-ambitious young surgeon these are tempting cases, as almost any form of operation is followed by cure, but the general practitioner can, if willing to devote the necessary time to them, secure just as good results without the use of the knife. There are very few ruptured infants that cannot be cured by the family physician.

Statements that operations are advisable on children because trusses cannot be worn are born of absolute ignorance of the mechanical treatment of hernia; as a matter of fact, infants tolerate truss pressure better, if that pressure is intelligently

applied, than do adults. It is true that almost all infant-trusses are made entirely too strong, and if applied as sent out by manufacturers must cause pain and injury; it is just here that the physician's knowledge and supervision are essential.

Nor is it a fact that hernia cured by the truss is more liable to recur than when the same result has been brought about by an operation.

It has been a matter of surprise to me that so few of the children who have been under my care during the past fifteen years have had a return of their hernias after once cured.

The age at which mechanical treatment may be begun is a question which I have found many physicians in doubt upon, and my answer to that has been almost uniformly that a child old enough to be the possessor of hernia was quite old enough to have that hernia treated.

I have repeatedly put trusses on babies ten days and two weeks old, and have never had occasion to regret beginning treatment at this early date. It is an erroneous idea, and unfortunately a rather prevalent one, that the baby will "out-grow" this defect, or that it is "better to delay treatment until the child is older."

It being conceded that it is advisable to begin treatment as soon after the development of the hernia as possible, the next question is as to the manner of supporting the protruding viscera.

Within my experience there is no bandage or makeshift of any description that will take the place, either for comfort or efficiency, of a carefully-applied truss containing a metallic spring.

As a substitute for this there have at various times been recommended elastic bands, so-called elastic trusses, and bandages of other material.

In Germany there has for a number of years been used a popular appliance consisting of a skein of worsted or yarn. More recently that method has been introduced into England, and later into this country.

A "hank" of worsted, as wound at the factory, is placed about the child's pelvis, in the following manner: One end of the loop being held over the site of the hernia, the skein is

carried across the front of the abdomen and around the body ; the end is slipped through the loop over the hernia, and the noose surrounding the hips is drawn moderately tight, the free end of the skein being now carried under and around the thigh of the affected side and tied to the band surrounding the hips. This when properly applied brings a fair amount of pressure across the upper edge of the pubic bone, and will for a time retain a hernia of moderate size, and may in some instances retain it long enough to have a cure result. In by far the greater number of instances, however, it will prove a "delusion and a snare" if applied for permanent use, and the case will gradually but surely grow worse. It is only an evasion of the small amount of trouble involved in the fitting of a truss, and it is neither as effective nor as cleanly. At my clinic I have had occasion to remove a number of these bandages which had been applied at another institution in this city. I found that at first they had proven very satisfactory, but it was soon discovered by the parents that the hernia was not perfectly retained. Positive pressure over the upper part of the inguinal canal, which is essential to the cure of the case, cannot be maintained by this bandage, nor by any form of so-called elastic truss, as it can be by a spring truss. For those practitioners far removed from the larger towns or cities it would answer a good purpose for temporary use, but I should certainly advise against its employment for the purpose of obtaining a cure.

There is no lack of good trusses in this country. The druggists of every town and hamlet in the United States are annually visited by representatives of manufacturers, whose products are not equalled in any other part of the world. Furthermore, such patents as were of value have expired, so that competition is in price and quality, resulting to the benefit of the consumer in this instance.

In selecting a truss for use on an infant the first question is as to the style or pattern which will be best adapted to the purpose.

To name the various trusses made would be to consume the entire limits of this article, but by looking at general principles we can exclude a vast number that are old in

design, and worthless, now that better appliances have been introduced.

I would condemn all infant-trusses which are made to apply from the side of the rupture, all of those where the pad is placed upon a descending arm at a level lower than the pelvic spring, and all trusses cushioned or padded with soft material. The so-called French and German styles of truss, which comprise the bulk of stock of many druggists, should have become obsolete half a century ago.

In making the selection the following points should be borne in mind: First, the spring should be so tempered that it may be readily bent to the exact shape of the child, and its pressure added to or diminished by increasing or removing the amount of curve which it possesses; second, the entire truss should be impervious to moisture, that it may be frequently washed; third, it should be durable.

The more simple in design the truss is, the better it is, as a rule. Pads with ball-and-socket self-adjusting action, so called, or with complicated set-screws for adjustment, are entirely unnecessary, and soon become useless.

For the treatment of single inguinal hernia in the infant, the spring which, from the pad, crosses the front of the abdomen, passes around the hip of the opposite side, and across the back, is one of the most valuable appliances that can be used. This truss can be obtained of almost every druggist in the country, the spring covered with either hard rubber or celluloid; it is known in the trade as the "cross-body" truss. A spring of this style will surround about two-thirds of the pelvis, and while it is supplied with a strap to complete the circumference, it readily holds itself in place whether the strap is buttoned or not.

Those covered with celluloid have the advantage of being readily shaped to the form without heating (which is necessary in shaping the hard-rubber springs), but have the disadvantage of not being so durable as those with the rubber covering.

In my private practice and at my clinic I have, for the past two years, used a truss which has given me very great satisfaction. This I have had made with a German-silver spring (more recently of aluminium) covered by soft-rubber

tubing and with hard-rubber pads. The spring almost surrounds the pelvis, after the design of the late Dr. Hood, and either one or two pads can be used upon it.

A truss known as the "Hood" truss, covered with celluloid, can be obtained of the druggists in children's sizes, and is quite similar to that which I use. Either of the designs of which I have spoken can be used with comfort to the little patient, and for the cure of its hernia, if properly shaped and cared for by the attending physician.

The measure for selecting the size of the truss should begin just above where the hernia is seen,—that is, over the internal abdominal ring,—and pass around the hips midway between the crest of the ilium and the trochanter major. This, in number of inches, will indicate the size of truss required.

In the shaping of the spring, the diagram method which I published a few years since* will be found of the greatest service. It consists of securing a tracing on paper of the exact shape of the hips at the point covered by the truss spring. A piece of sheet lead one-sixteenth of an inch thick, about half an inch wide, and long enough to go at least two-thirds around the child is used for this purpose. Place one end of the lead over the inguinal canal with the strip resting across the abdomen. Mould the lead to the shape of the abdomen and pass it around the hip opposite to the hernia and across the back. Press the lead to the exact shape of the hip and back, and then slip it off, place on a sheet of paper and make a tracing of its inner surface with a pencil. The shape of the other hip may be taken in the same way, giving an approximately correct diagram of the pelvis. In shaping the spring this diagram is used instead of the child. If a spring covered with hard rubber is used it should be passed through the flame of a spirit-lamp until it is quite warm, and it can then be bent to the exact shape required.

As before stated, almost all infant-trusses, as sent out from the shops, are too strong in pressure, and this should be carefully guarded against.

* "The Practical Treatment of Abdominal Hernia," *New York Medical Record*, August 11, 1883.

Only a light pressure is required if its location is at the right spot. A very common, almost universal error in applying trusses is in putting the pad too low. If the pad rests over the pubic bone its efficiency is at once destroyed. It should be borne in mind that the design of truss-wearing is to keep the bowel entirely within the abdomen, and in order to accomplish this in a thorough manner the supporting pressure must be very nearly over the *internal* ring. The descent of a hernia may be stopped at the external ring, and, while it may in this way be kept out of sight, it still occupies the upper part of the canal, and a cure will never result. A truss-pad that rests against the bone cannot thoroughly protect the upper part of the canal: it is held away from it, and the child is made uncomfortable. When the truss is fitted high the parts back of the pad are soft and yielding and it is worn with comfort.

Now, having fitted the truss, the care of the case has really only just begun. The child must be kept under observation, and the truss changed in shape and size as it grows. It should at first be seen at least once a week, and not allowed to pass entirely from care *until it is cured*.

In case of whooping-cough or severe bronchitis supervening it is advisable to increase the truss pressure temporarily, but otherwise after the first three months it is well, if the hernia never protrudes, to begin to reduce the pressure.

One year is the shortest period that a truss should be worn, and it should never be removed by the mother except for purposes of cleanliness, and this should be while the child is quiet and in the recumbent position. Absolute cleanliness must be insisted upon; if the skin be kept clean and dry it will tolerate pretty strong pressure without abrasion.

In this connection I wish to repeat the formula of a powder which was published in the article previously referred to. After nearly ten years' experience with it, I cannot recommend it too highly, not only for use on infants wearing trusses, but wherever a toilet-powder is used for children. My adult patients have also found it of service to keep the skin healthy under truss pressure:

R Amyli, ℥iv ;
 Cretæ Gallicæ, ℥ii ;
 Alum. ust.,
 Acidi boracic., āā ℥ii ;
 Acidi carbolicī,
 Ol. limonis, āā ℥ss. M.
 Sig.—Powder very fine.

Where an abrasion has once occurred and is slow to heal, on account of the constant wetting by the urine and the irritation of the truss, I have found nothing better than the balsam of Peru.

As previously stated, the truss should be kept on for one year; if, however, the case has been one of undoubted congenital hernia, it is best to prolong the period of wearing the truss to two years. The truss pressure should have been gradually lightened until during the last six months it has served merely as a protective support against the recurrence of the hernia. If a strong truss were worn during the same length of time and then entirely removed, there would be a far greater liability to a return of the trouble.

Attention to the child's general condition should not be overlooked. Constipation must be prevented and the digestive apparatus looked after. It adds greatly to the difficulties of controlling a large hernia if the intra-abdominal pressure is increased by flatulent distention of the intestines.

Among the complications mentioned in the first part of this paper, fluid in the cavity of the tunica vaginalis is perhaps the most common and certainly the most perplexing. This fluid, which is usually reducible to the abdominal cavity through the neck of the tunica, may be present when the case first comes under observation, but more frequently forms during treatment. I think it occurs in the majority of cases of congenital hernia, and usually from one to two months after treatment has begun. The parent will bring the child back and tell you that the rupture is not held by the truss as formerly, and that it is down almost all of the time. The means of distinguishing this from the hernia have already been mentioned.

As regards treatment, it is best to let the fluid alone except in some rare instances where its quantity is so great as

to inconvenience the child. If it ceases to return to the abdomen, indicating that the communicating neck has been obliterated, forming true hydrocele, it is well enough to tap with a small trocar, and this is usually sufficient to produce a complete cure. If from any cause the child has an effusion of fluid within the abdominal cavity and also has hernia, the fluid will at once fill the hernial sac. In cases of this character truss pressure should be continued in order to protect the tissues about the canal. The fluid cannot be retained by any form of truss.

Non-descent of the testicle, associated, as it usually is, with hernia, requires careful attention. We should never fail to examine carefully the scrotum of the ruptured child. It is not uncommon for me to see boys eight or ten years of age in whom it had never been discovered that only one testicle was present in the scrotum, and in infancy this defect is more than likely to be overlooked, or, what is worse, if the testicle lies just outside of the external ring it is mistaken for hernia, reduced, and kept back by a truss. When the testicle is in the canal, treatment will, in many instances, have to be delayed until it passes the external ring; then a small pad may be applied over the upper part of the canal.

What has been already said applies more especially to the treatment of inguinal hernia, but with slight modification can be used in the treatment of the umbilical and ventral variety.

In the drug-stores will be found hard-rubber and celluloid trusses of excellent pattern, the variety being less than for inguinal hernia and the designs, as a rule, better. The diagram method of taking the shape of the child will be found equally serviceable here.

In infants under six months of age I seldom use a truss for the cure of umbilical hernia. The cure is usually accomplished within three or four months, and I use, as a compress, cork cut so as to press slightly into the navel and support the surrounding parts. Corks used by druggists for wide-mouth bottles answer this purpose exceedingly well. A thin layer of absorbent cotton is placed under this, and the whole is strapped down by one-inch strips of Mead's rubber plaster passing

about two-thirds around the body. A dressing of this kind changed about once a month answers every purpose.

If the child is one year old or older, the conditions are somewhat changed: treatment will have to be continued longer, and it is better to apply a spring truss. I have had poor success with the little belts made for this purpose, and prefer an accurately-shaped spring. The conical elevation in the centre of the umbilical pads should not be too high and sharp. This was a serious error in some that were made a few years since, but the manufacturers have, in the main, obviated this defect.

In giving mechanical means the first place in the treatment and cure of hernia of infancy, I do not wish to be understood as discouraging surgical measures. On the contrary, I believe, with Spanton, that it is as justifiable to operate for the cure of hernia in a child as it is for the cure of club-foot or other malformation. If by mechanical means we cannot correct either the one or the other, it is our duty to go further and operate.

In club-foot there are cases which an experienced surgeon could confidently state would never be cured by mechanical appliances, but this is scarcely ever true of hernia, some of the most extreme cases in infancy yielding promptly and permanent cure resulting without the use of the knife. This being a fact, beyond all question it is our duty to try the mild means first. If this be faithfully carried out, it will be found that very few cases remain requiring surgical operation for cure.

The injection method, after Heaton, while it is of comparatively little value for use on the adult, as the test of time has shown, will in many instances hasten cure in young children, and comes midway between the mechanical and surgical treatment. At the expiration of about one year of truss-wearing, if there appears to be little tendency towards a cure, I have frequently had the most gratifying results follow the injection of ten or fifteen drops of the Heaton fluid into the tissues of the canal.

As previously stated, omentum seldom forms a part of the contents of hernia in early life, and in operating, its amputation is scarcely ever called for; we have, therefore, to consider

only the management of the sac and canal in the cure of infants.

I have no occasion to change my mind regarding the Barker operation, which I have used with excellent results since its publication in the *British Medical Journal*, December, 1887. In my opinion, it is the very best operation at our command for the cure of hernia, either in the infant or the adult. Briefly, it is done in the following manner: An incision is made from over the external ring downward, from one to two inches in length. This is carried down to the hernial sac, the neck of which is isolated from the cord. If the fundus of the sac is small and not strongly adherent, it is stripped from its resting-place entire; if large and firmly attached, it may be left *in situ*, being separated at its neck. The neck of the sac is to be freely separated from any attachments to the interior of the canal, and drawn down so as to ligate it flush with the peritoneal surface. Before the ligature is tightened the sac should be opened and the finger introduced to insure its freedom from a loop of bowel. The assistant now draws the ligature tight and ties it just at the end of the operator's finger. The ends of this ligature should be long, and are used for anchoring the stump of the sac at the internal ring and for diminishing the calibre of the canal at this point.

One end of the ligature is threaded into a long, blunt, curved needle with fixed handle. The stump having been pushed into the interior of the abdomen, the skin being well drawn up over the internal ring by a retractor, the blunt needle is carried up to the upper part of the canal, its point directed towards the median line, and brought out through the muscular wall of the abdomen about half an inch to the inner side of the internal ring. It is unthreaded, withdrawn, the other end of the ligature threaded into it, and its point carried to the internal ring, directed out towards Poupart's ligament, coming through the muscular wall half an inch to the outer side of the ring. The two ends are tied down moderately tight, fastening the stump of the sac at the internal ring and narrowing the upper part of the canal. The curved needle is again threaded and passed through the anterior wall of the canal about a quarter of an inch lower than

the first one, the first puncture being towards the median line and the second towards or through Poupart's ligament. In like manner, from three to five stitches are placed in the front wall of the inguinal canal, the last being through the external pillars. When the retractor is removed the skin drops down over the knots and they become subcutaneous. The external wound is closed by first intention if possible, and the deep stitches are left permanently in place.

These stitches are of heavy braided silk, and its preparation is a matter of importance, as if it is not perfectly aseptic they will come out.

The silk to be used should be boiled for twenty minutes in a one to twenty carbolic solution and then kept in alcohol until the operation.

It has been my custom to bring the external wound together with silk and seal it with iodoform collodion, not removing the bandage for ten days unless temperature or pain indicates trouble. At the expiration of this time complete union will usually be found to have taken place.

56 WEST THIRTY-SIXTH STREET.

THE STERILIZATION OF MILK AND THE STATUS OF OUR KNOWLEDGE UPON THE SUBJECT.*

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IN presenting this subject, I feel that I am going over ground well elaborated before me, yet even in the face of this it is somewhat surprising to find the lack of systematic idea entertained by physicians upon the subject of milk or its sterilization. This most important innovation upon infant-feeding has even in our journals been granted faint praise in occasional paragraphs.

* Read before the American Medical Association, Washington, May 5, 1891.

Though the work done thus far in this field has been most painstaking and scientific, it has not fully reached those for whose benefit these investigations are mostly undertaken,—the medical public. There are scattered through the French and German literature some very classical articles upon this subject, but no English writer has of late attempted to systematize and classify the ideas presented. If this article will deal with some scientific and abstruse data, it will endeavor to bring these in direct relation with our daily practice and therapy. For a long period past, the author has been going over old and recent ground, and this paper will endeavor to formulate the landmarks of our knowledge in this field.

Milk as it exists in the udder of the healthy cow is devoid of bacteria, as is also that of the human subject ; germs of an offending nature reach the milk after it has left the animal. Speaking only of healthy animals and their milk, it is a matter of daily observation that various samples of milk will contain varying quantities of foreign matter, due, no doubt, to varying conditions of cleanliness at the first dairies. Soxhlet and Renk called attention first to the palpable detritus to be found in milk, and this has been often confirmed by my own observations. Aside from straw or dirt from the hands, if milk be allowed to stand in large quantities, small black specks may be seen at the bottom of the containing vessel, if this be glass. These small specks are manure from the udder or teats of the animal ; thus it is easy to see how even healthy milk may contain very obnoxious elements. Renk found that different dairies varied in this respect as to the quantity of sediment. Here, in New York, I am happy to say, we can, with care, obtain a milk moderately free, though not entirely so, from those elements ; but I have during the summer season (a year ago) seen these black specks very abundant in milk in large quantities. Thus the bacteriology of milk must vary vastly with the varying amount of care or cleanliness with which the milk is collected,—and results of different authors will also vary, according to the source from which the milk is obtained. But the main principles are fixed, and can guide us in our practice.

If milk be allowed to stand at the ordinary temperature of

the room, either in summer or winter, it becomes "sour,"—acid in reaction; there is a disturbance noticed in the consistency and appearance due to a precipitation or coagulation of the caseine elements of the milk and their separation from the fluid portion of the liquid. This is the acid fermentation of milk found under normal conditions, and in ordinary milk, and was systematically studied by Pasteur, who described the "*ferment lactique* or lactic acid bacillus as the cause and prime factor in this change. The rapidity of fermentation must vary with the temperature and varying conditions of bacteric invasion of the fluid. During the heated term these conditions are presented at their best, and it is then that the above changes set in most rapidly.

In order to understand the true value of our present methods in dealing with artificially-fed children, it is necessary to go over some historical ground, and I promise only to take you where my own studies and observations have led me.

The most admirable work of Hueppe upon milk, its decomposition by micro-organisms, is known to you all. I will collect some data from this article first in my *résumé*.

As an example of the older doctrines upon the decomposition of milk, we may mention the views of Stahl, who, writing in 1697, considered fermentation and putrid decomposition as analogous processes, fermentation being only a variety of decomposition. He assumed that in fermentation there was the formation of new combinations, and the cause of the decomposition resulted from the transmission of molecular movement to easily decomposable combinations. The great advance in our knowledge of lactic acid fermentation presupposes that once for all lactic acid is a very characteristic combination, and on this ground its separation from other decompositions. Scheele, in 1780, first discovered lactic acid in milk with its great resemblance to acetic acid. It will not aid us to go into a long *résumé*, so that our purpose will be subserved if we next look at the work of Pasteur, who, in 1857, described a ferment which was always present when lactic acid resulted from sugar in organic fluids. He described this ferment minutely as small spheroidal bodies forming short links. With this theory of Pasteur, the lance was again taken up for

the bacteric as against the chemical theory of fermentation. Later, 1858, Pasteur proved that in various fermentations, if lactic acid be present and formed, the lactic acid ferment was always present, although there were numerous others and with difficulty isolated ferments. By excluding the air, his fluids remained unchanged, so that he concluded that the organisms were derived from the atmosphere, and did not result from spontaneous generation. He found, what is important in relation to sterilized milk, that in spite of subjecting milk to a temperature of 100° C. coagulation resulted,—not with acid but alkaline reaction. There was no lactic acid ferment, but “infusoria” (potato or butyric acid bacilli). At a temperature of 110° C. to 112° C. and $1\frac{1}{2}$ atmospheres, there was a destruction of all life, no infusoria found, and no fermentation resulted. Failure to sterilize the milk was due not to spontaneous generation, but to the presence of a very resistant organism.

Schroeder and Pasteur came simultaneously to the conclusion that milk is difficult to sterilize, because it contains organisms which are very tenacious of life. But while Schroeder assumed that these organisms were present in the milk itself, Pasteur thought they were derived from the surrounding atmosphere. Pasteur first (1861) divided the butyric acid ferment from that of lactic acid, and minutely described the butyric ferment, which he called “vibrio,” and classified it among the infusoria (bacilli). The lactic acid ferment was also minutely described. Lister, in 1878, established that the particular organism which he named *bacterium lactis* caused the acid fermentation of milk, and he, by a method of dilution by which each drop of his fluid held a ferment germ, caused sterilized milk to undergo lactous fermentation with acid reaction; he described this organism also very minutely. He proved that other fluids, as water added to sterilized milk, caused other fermentations, as butyric but not lactic acid fermentation. Up to this time the doctrine was promulgated by Schroeder, Schmidt, Hoppe, Seyler that though an organized ferment may cause lactous fermentation, yet, under all circumstances, this was not necessarily the case, but that there were lactous fermentations dependent upon a chemical ferment pre-existing in the milk and derived from the mammary gland.

W. Roberts, in 1874, succeeded in retaining milk drawn from the breast into glasses free from fermentation, and Lister and Cheyne had similar results. Meissner first established in a scientific way that milk as other fluids could under certain precautions be drawn from the animal and retained free from decomposition,—that is, that decomposition was due to organisms which reached the fluid from surroundings and air. Therefore the milk in the presence of antiseptic means and high temperature acts not like an enzymotic solution, but as a medium which contains organisms capable of certain resistant powers. Therefore, the cause of lactic acid fermentation is an external one always, and the germs gain access in the stalls and storage places of the milk. These are only avoided with such caution as to give rise to the idea that, as formerly in vogue, the milk itself contained the primary cause of fermentation in the form of a chemical substance.

I have in the above given a short *résumé* of the principal steps which led to the closer bacteriological study of milk; yet it is surprising that, though Pasteur so long ago established the fact that the acid fermentation of milk could be avoided, and gave data, no systematic attempt at milk sterilization was thought of in connection with infant therapy until the work of Soxhlet, preceded by that of Hueppe, appeared, and this is explained by the enormous impetus given to modern bacteriological researches by the doctrines and methods of Robert Koch, which has permeated every branch of our professional work.

When we subject milk to heat, we have to meet the insurmountable obstacle of an organic fluid which not only may contain bacteria which are resistant to a considerably higher temperature than that of ordinary steam, but by the nature of its composition, milk is apt to protect to a very effective degree contained bacteria from the action of the externally acting heat. Again, milk if heated to too high a temperature changes in color, and there is a separation of certain elements (butter) and a change in others (caseine and sugar elements). From the temperature of 75° Celsius upward there is a separation of the serum albumen of the milk; the caseine loses its coagulability to rennet, and at 85° C. amounts of rennet, which

for the raw condition of milk are found sufficient to act, cease to be effective. J. Munk found that in milk sterilized under three atmospheres four times the ordinary quantity of rennet was necessary in order to act satisfactorily. Hueppe has confirmed this, as has also in another manner Dr. Chapin, who has, it seems, come to the independent conclusion that the caseine of the milk suffers a change in sterilization. (*Med. Rec.*, 1890.)

Hoppe found that milk sugar at 80° C. to 90° C. suffers a change, which increases at 100° C. to such an extent that, after two hours' exposure to this temperature, milk and milk-sugar solutions become of a brownish tint; at a temperature of 110° C. this is more marked. Pasteur found that, at a temperature of 110° C. to 112° C. and $1\frac{1}{2}$ atmospheres, there is a slight oxidation of the fats in the milk, which gives it a tallowy odor.

Hueppe concludes that between 75° C. and 100° C. the milk is gradually changed in its chemical composition, but these changes are of such a nature that the digestibility of the milk is scarcely diminished and its taste and odor but little changed. Temperatures of 140° C. may coagulate the caseine (Hoppe), and at 120° C. coagulation begins to set in if this temperature is kept up for any length of time.

I have here tubes in which the milk has been subjected to only the Pasteur temperature, $1\frac{1}{2}$ atmospheres, and 112° C., with only the brown discoloration to be noticed, from inspection.

The above facts are, and will be, useful in guiding future work upon this subject, and the law laid down by Hueppe still remains true, that from a physiological stand-point milk is best sterilized (if possible) under a temperature of 75° C., but it may be admissible as far as 100° C.

We have, of late years, been recipients of many suggestions as to sterilization, but if we look at the mass of matter and suggestions, we will find that though the above principles still hold good and have been established for decades, the only direction towards which ingenuity of physiologists and clinicians has exerted itself has been mostly in the empirical direction of some form of "apparatus." Thus, in the great struggle to invent some unique form of cooking-utensil, some great truths have been lost sight of and buried in the *débris* of appa-

ratus. The sterilization of milk may be performed, according to Pasteur, absolutely at a temperature of 110° C. to 112° C. and an increase of $\frac{1}{2}$ an atmosphere; this has its objections, and these are, as it seems, very formidable, not only from an æsthetic stand-point, but the physiological also. The caseine, which even at 75° C. begins to change, certainly approaches the coagulation-point (from heat alone) at the Pasteur temperature. Not only this, but there is reason to believe that such caseine is even less acted upon by the weak stomach juices of the infant than we at present are led to believe from physiological experiment. Another method of sterilizing the milk is also a gift of the genius of Pasteur, and that is the so-called Pasteurization of milk. In the *Zeitschrift für Hygiene*, vol. viii., heft 2, Bitter has attempted this method: Milk is heated in large masses up to 70° C. to 75° C., and maintained at this temperature for half an hour, then rapidly cooled; this is done by passing the milk over coolers; the temperature of 18° C. to 19° C. is attained, when the milk will keep quite well for some time,—twenty-four to forty-eight hours; but this scheme is scarcely practicable,—what I mean by this is that no means are as yet at our disposal to place this in every household. Strub (*Centralb. für Bact.*, 1890) gives details of a method by which milk heated to 70° C. and very rapidly cooled to 40° C., or even 20° C., for about five successive times, has given satisfactory results in mercantile departments of the milk industry, but the apparatus necessary for this, it is needless to say, must be very elaborate.

We next take up the sterilization of milk at the heat of boiling water, in a water bath, that of Soxhlet, of Munich. To this man will always remain the great merit, not of having done anything new, but of practically placing milk-preservation within the reach of every housewife, and of putting into practice certain principles for whose reception the therapeutic world was not hitherto prepared, though these principles were well known. Soxhlet (*Mun. Med. Wochen.*, 1886, p. 253) brought forward in a striking way the advantages of protecting the infant from the acid fermentation of milk, and he eliminated it very easily by, as you all know, placing the nursing-bottles in boiling water and leaving them thus for

forty minutes. He also called attention to the external sources of uncleanness at dairies, such as pots, hands, and the state of the udder of the animals. Soxhlet, at that time, said that milk thus treated could be kept at a room temperature three or four weeks without spoiling or becoming acid. This, I will show, is true to a certain extent. It is a misleading statement. He gives some interesting data as to the time and temperatures at which ordinary acid coagulation of milk takes place. Thus: at 35° C., in nineteen hours; 25° C., twenty-nine hours; 10° C., two hundred and eight hours; 0° C., three weeks. In any acid milk, fermentation at 35° C. results in the production of three per cent of alcohol, almost as much as that contained in beer. Soxhlet placed great stress upon his peculiar stopper, which I will take up later. It remains that the Soxhlet plan is that of the boiling-water bath, and it has its drawback in a certain amount of irregularity of heat conductivity by which the methods and results are less uniform than that of the next method, which, I think, is the most satisfactory, and that is the sterilization of milk by the plan first advocated by Hueppe in 1884 ("Mittheillungen aus der Kaiserlich Gesundheitsamt"). By this method, the milk is sterilized in small quantities, but the water does not reach the containing-flasks, and steam alone is the means of sterilization. The results are certainly more uniform by the sterilization in steam; by this uniformity I simply desire to mean that we are first certain that every flask being surrounded by steam receives the benefit of the same quantum of heat, 212°, and the latent heat of steam. The conclusions of Hueppe were that steam was most satisfactorily and rapidly generated in the ordinary protected tin pot of Koch, and milk which in reagent glasses had to be subjected to the boiling bath for one hour were easily protected and sterilized from acid fermentation in twenty minutes in the live steam; this is of great economic as well as of scientific importance, and is another guiding post for future work. Occasionally, in this short space of time, the milk sterilized in reagent glasses would subsequently coagulate, but in forty-five minutes the sure sterilization resulted. Hueppe noticed that in milk which was certainly sterilized at 100° C. there appeared gradually a

sediment, which, he thinks, contained the separated albumen and coagulated caseine, and the milk above this sediment was more watery than the milk sterilized below 75° C. Thus the milk sterilized under 75° C. differs from that sterilized at 100° C. in the more marked appearance of sediment and its insolubility. Nægeli noticed changes even in milk heated to 110° C. to 120° C. after four to six months both in appearance and taste. Meist (Hueppe) records appearance of peptone, tyrosin, and leucin and ammonia in milk apparently sterilized. As far as our knowledge goes, milk may be absolutely protected from future *acid fermentation* by subjecting it to a temperature of 100° C. in live steam.

I will ask you to notice that there is another fermentation of milk, the alkaline concerning which a great deal of misunderstanding exists, but about which there are certain well-known facts, to which I beg your present attention.

The acid fermentation of milk is brought about chiefly by a species of micro-organisms called by the author Hueppe, who very closely studied its growth and behavior, the bacillus of lactic acid fermentation. The milk as it reaches the purchaser is very rich in micro-organisms, but this one alone is chiefly responsible for the sour reaction of spoiled milk. I show you a culture of this in various media and fluids, and you will see it was well described by Hueppe.

I do not think this is the place for close bacterial descriptions, but let me call your attention to some very interesting data. This micro-organism is of small oval form, occurring single and in pairs. It does not fluidify gelatin, and grows upon all media when it is inoculated into absolutely sterile milk (milk subjected to temperature of 112° C. and $1\frac{1}{2}$ atmospheres); there is in a short space of time a coagulation of the caseine elements, but what is most interesting is the accumulation of bubbles of CO_2 gas at the top of the milk and near the top. I show you a potato culture of the bacillus of lactic acid and you can see the bubbles of CO_2 in this culture also. The coagulum of the milk is peculiar in that it is traversed by fine spaces and cracks, in which are entrapped bubbles of CO_2 . The spaces become larger and wider; the coagulum contracts after a few days. In these spaces there is

a serous fluid. The micro-organism measures 1 to 1.7 μ . long and .3 μ . to .4 μ . thick; the bacteria may reach .2 μ . in length. Hueppe thinks they contain spores, especially in sugar solutions; he also found these spores in sour milk. (But this is difficult to reconcile with some statements of Loeffler, which will be referred to below.) This organism grows from 10° C. up, and its maximum growth between 35° C. and 42° C.; it also stops growing and the acidity no longer forms at 45.3° C. to 45.5° C.

It is not necessary to go into further details, but we must remember that the heat of steam, while it may in twenty minutes destroy the lactic acid bacillus, does not entirely destroy the spores so that a prolonged steaming is necessary to absolutely render these spores innocuous (forty-five minutes). Thus, as mentioned, Hueppe found that test-tubes of milk sterilized for twenty minutes in steam did not always remain free from acid fermentation, the spores subsequently growing and causing acid fermentation, and I myself have seen tubes heated with steam for twenty minutes undergo subsequent acid fermentation in the thermostat, turning the litmus which was mingled in some of the tubes red, and finally decolorizing it. The lactic acid bacillus of milk is able for a time to resist the temperature of steam.

It has been noticed (Pasteur, Nægeli, Hueppe, Meyer, Loeffler) that milk which has apparently been thoroughly sterilized will, after a space of time, vary in each case with circumstances of temperature and previous state of the milk, undergo changes and a distinct precipitation, or rather coagulation, sometimes with the formation of peptone, leucin, and tyrosin. Pasteur, as above mentioned, established that these changes always occurred in the presence of an alkaline reaction; when milk was sterilized at 100° C., acid reaction was never present. He named the bacteria thus found in the milk so decomposed infusoria; we know now that they are always rod-shaped or bacilli. Acid reaction is never present except to a slight degree at first with the butyric acid bacillus (Hueppe), but alkaline reaction soon results even here. Hueppe first described the butyric acid bacillus (aerobic) which he found in milk which had been subjected to three atmospheres of press-

ure with corresponding high temperature. This milk was decomposed, and contained a bacillus which was very resistant and could withstand very high temperatures; even much higher, as you see, than the $1\frac{1}{2}$ atmospheres of Pasteur. This bacillus or microbe contains spores, and it is in this the resistance to temperature exists. Hueppe described this bacillus minutely, and we are able to find it to-day in milk (Löffler). I have been able to isolate a bacillus very much resembling it with others from milk sterilized by various apparatus, and have found it in a sample of milk which had been sterilized by the Escherich new large sterilizer, in which the milk is sterilized in quantities of about a quart. The milk was taken from the sterilizer on the second day after sterilization. The milk was slightly alkaline, and subsequently became very alkaline in reaction with small and large soft clots of a peculiar odor. This is nothing new, but it will explain other facts hereafter to be stated. The ordinary potato bacillus (*bacillus mesentericus vulgatus* of Flügge) was also present at the same time. Löffler (*Berlin. Klin. Wochen.*, 1887) not only confirmed Hueppe's investigations, but found other bacteria, all varieties of the ordinary potato bacillus, in milk which had been subjected to the temperature of steam for ten minutes. This temperature destroys the bacilli and other bacteria, but not the spores, except those (this not always, as Hueppe found) of lactic acid fermentation. These spores subsequently decompose the milk through their proliferation, but always with alkaline reaction. The coagulation of the caseine is also of a more flocculent character. There are first the ordinary potato bacillus (the *bacillus mesentericus vulgatus* of Flügge), then the white bacillus, a subvariety, as also the gummy (*bacillus liodermos* of Flügge), and a third variety of the same organism, which Löffler calls the white bacillus. It would be sufficient to mention these here and to show how they grow only in sterilized milk. In sterilized milk the potato bacillus (first described by Hueppe), after a few days in the thermostat, causes the appearance of a clear zone underneath the cream zone at the top of the milk. This zone varies from a clear to a cloudy one, according to the varieties of potato bacillus which is inoculated or growing in the milk.

Crystals of leucin and tyrosin appear at the bottom, in case of the white bacillus. The reaction of the milk is distinctly alkaline. The most important lesson to be learned from the above is that milk well sterilized by steam with any apparatus (Koch, Soxhlet, Escherich, Arnold steam cooker) will after a time decompose with an alkaline and no acid reaction. The time at which macroscopic changes appear has been regarded by some authors as the surest sign of decomposition, but they have mostly, even in late times, talked of the milk becoming sour, as you see it does not undergo acid fermentation but alkaline fermentation.

Strub (*Centralb. für Bact.*, 1890) has experimented with almost every known apparatus, and was able to establish, even immediately after sterilization, the potato bacillus in the samples of milk which she used. She also established that repeated fractional sterilization in a Koch apparatus was not sufficient, even after many repeated steamings, to entirely destroy this bacillus (its spores).

Especially interesting is the behavior of bacteria when inoculated into milk (sterilized) to which litmus (one to ten), according to Liber and Marpiman, has been added. There is a gradual decolorization of the litmus in some, showing that there is something formed aside from pure alkalinity or acidity, which has an oxidation action upon the litmus.

I show also that the lactic acid bacillus turns the milk with litmus red and finally decolorizes it. The streptococcus pyogenes turns the milk acid, litmus red, and finally decolorizes it. The typhus bacillus (Löffler) turns litmus (sterilized) milk slightly red. Tubercle, diphtheria, and cholera microbes grow very well in milk without causing any marked change in the same. The substance which with the lactic acid bacteria and potato bacillus and streptococcus causes decolorization is not, as yet, established.

The object of this paper being a review of our knowledge of sterilized milk and its value, as also the writer's observations in this line, it is foreign to consider here the decompositions or contaminations of milk as we find it in the stores. The heat of steaming is a protection against those microorganisms which cannot withstand this high temperature and

maintain life (tuberculosis diphtheria), as also against the occasional animal diseases. The blue milk and stringy, slimy milk (Hueppe), as also even tuberculous milk, form such a distinct field of work that a separate paper could be written upon them alone. The practical deductions which can be drawn from what has been stated above concerning ordinarily good milk and its sterilization seem very evident. The first is that milk can be thoroughly protected from subsequent rapid acid decomposition by exposure for a certain time to the temperature of steam, and to accomplish this the several apparatuses in the market are entirely efficient. It matters very little how many or what variety of micro-organisms exist prior to steam; after this only those micro-organisms remain capable of proliferation whose spores have a resistance against continued application of 100° C. These, in normal milk, have been shown to be the butyric acid bacillus and the various varieties of the ordinary potato bacilli. If milk be sterilized and it is found to contain these micro-organisms after steaming, their number and capability of doing injury to the milk will vary very much with the conditions under which the milk has been collected. If these micro-organisms pre-existed in enormous quantities, the alkaline fermentation will, under a favorable temperature, set in sooner. If in small quantities, the macroscopic changes of the milk will be scarcely perceptible for some time. If milk could be sterilized after careful collection at the dairies, it might keep very long after sterilization. Thus it is seen that even directly after steaming the micro-organisms and their spores exist in sterilized milk if they cause the subsequent decomposition. Strub (*Centralb. für Bact.*, 1890) found that the variety of cork or method of closure of the bottles in children's apparatus had very little to do with this subsequent decomposition. Bacteria were present in the sterilized milk, no matter what kind of closure (Soxhlet, cotton, ordinary rubber) was used. But the most important point here to remember, and what is known to those who have given thought to this subject, is that the bacteria of the alkaline milk fermentation are very slow to proliferate in sterilized milk: at room temperature the changes in the milk are at best delayed for a few days, even a week, and

when the changes are not so marked as to be detected by the eye, such milk has been sold in the stores and given by others to infants without *seeming* deleterious results, at least not such as are immediately apparent after administration of sour milk. Therefore, the influence of bacteria which remain in normal cow's milk after sterilization is of little practical bearing for infants, inasmuch as most families prepare milk daily, and I have never, nor can I find data where any one else has, found the alkaline fermentation in milk so marked after, say, forty-eight hours as to cause macroscopic marked changes. I refer only to the infant apparatus and summer temperatures, and not to those experiments in the laboratory where sterilized milk is inoculated with masses of active potato bacilli spores and bacilli themselves, specimens of which I show here. I would not approve, therefore, of the use of any city milk which, however well sterilized, was kept for days, and, though its color was good, as also its appearance, and it tasted well, is the seat of advanced changes. We find such milk sold in stores where the bottles have been kept even two weeks after sterilization. True, the alkaline fermentation has not been investigated to such an extent that we can with certainty pass upon the deleterious or non-deleterious effect upon infants of the products of this decomposition. It is enough that it takes place, and certain alkaloid elements are surely produced, but very slowly, and if the milk is steamed, as in the household, daily, may be disregarded ; but the storage of sterilized milk and its subsequent use, after prolonged periods, is to be strongly discountenanced. Therefore, in the future, we will know how to interpret those authors who condemn sterilized milk with faint praise by stating the number of bacteria (?) they have found in sterilized milk without stating the whole case. I had this "clear statement of the case" in view when I undertook the above work, and I hope I have, to a degree, succeeded.

To state that bacteria exist means very little ; we must know their variety and their behavior. There is an important practical point which, to the writer, seems pertinent here : Many physicians have often told me, and no doubt you also, that they find the boiling of the milk sufficient sterilization, or

that they cannot see why it is not fully as good as continued steaming. Never was a greater fallacy born of empiricism. Hueppe has shown that milk in small test-tubes (ten cubic centimetres) exposed for twenty minutes to the action of live steam at 100° C. is not surely protected from subsequent acid fermentation, and that some of his tubes thus treated turned sour after a time. Here is a tube of milk stained with litmus originally, and exposed for twenty minutes to the action of steam in the Koch pot. After placing it in the thermostat at a temperature of $35\frac{1}{2}^{\circ}$ C. to 36° C. it turned red in twenty-four hours; this became more marked until full coagulation of caseine resulted and with decolorization of the litmus. Thus simple, single boiling of the milk, as it is performed in the kitchen ordinarily, is insufficient to protect milk, aside from facts of exposure of milk to atmosphere and handling subsequently, which enhances chances for decomposition.

Physiological.—There have lately been some experiments, and notably by E. M. Hiesland and H. D. Chapin, upon the digestibility of sterilized milk and the chemical changes in milk brought about by steaming. Their conclusions are so much in accord with those of Hueppe and Munk that their quotation here would only repeat what has been recorded above. Dr. Hirst (*Med. Rec.*, February, 1891) has gone so far as to suggest the addition to milk of some pancreatin powder before sterilization, in order to digest and help the digestion of the caseine made difficult of digestive solution during steaming. Whether this will prove a valuable suggestion remains to be seen. For myself, I must say, I still hesitate to put any digestive powder in the milk of the healthy infant, but in a stomach which proves rebellious I have been in the habit, like many others, of adding powders to sterilized milk, but have hitherto done this after sterilization and just before giving the milk to the infant. The physiological data of our knowledge in this department of infant dieting are still very meagre, nor has the stomach-washing of infants before and after ingestion of foods thus far aided us materially in coming to definite conclusions. Interest has lately been aroused in the discussion of the amounts of milk to be administered to the infant at each feeding. On the one hand, we have Dr.

Escherich, who is still guided mostly by the age of the infant, and on the other, in our own country, Seibert has advocated the weight as the only criterion for infant-feeding. Seibert would reject all past methods and ask his adherents to give certain amounts to certain weights of children. Seibert gives us a table. But these agitations have had their uses, and now attention is being directed more fully to this subject than hitherto.

I have always been guided as follows: I weigh my children always at the beginning of treatment; if their weight comes up to the standard, or nearly so, they are given the amount of food which long series of experiments by physiologists and clinicians have proved to us to be adequate for normal children at certain ages. (*Vide Fleischman Pædiatrische Studien*, Vienna, 1875.) If the infant is markedly atrophic, and, as I have seen at three months, only weighing less than an average infant at birth, a proportionate amount of food is given, and subsequent improvement noted, the weight of the child, divided by the weight that would be normal, multiplied by the amount of food (grammes) necessary to an infant of normal weight and development at each feeding.

X = Weight of infant;

Y = Weight of normal infant of same age;

Z = Amount of food at each feeding which is normal to an infant at that age.

As far as our knowledge goes:

$\left(\frac{X}{Y}\right) \times Z$ = amount of food to be given at each feeding.

The above digression is warranted by the close connection it bears to any theme of infant-feeding, and especially in sterilization, where the size of the individual bottles are a matter of care to the mother.

I cannot close this paper without some practical suggestions, and if they appear trite, they have at least the value of being based upon a large experience. The ideal method would first be to either sterilize the milk in small or large quantities at the dairies, but this has not yet been attempted in the city.

The writer uses as a sterilizer the ordinary wire basket with eight bottles sold everywhere with the ordinary rubber cork.

If the patient can afford it, and wishes a rapid steam generator, the patent cookers are good ; if not, any pot will do which is big enough to hold the wire basket of bottles. The milk or milk and diluent are placed in the bottles, which have been thoroughly cleaned with hot soda water, and an inch and a half of water is placed in the bottom of the pot ; when the water is boiling the basket of bottles (without corks) is lowered into the pot and the same is covered. They are steamed thus for ten minutes to drive residual air out of the bottles. The pot is opened and each bottle is firmly corked, and the pot covered and steaming continued for forty-five minutes longer, when it may be considered completed in any weather. The basket of bottles are then placed in a shady, cool place. If the family be intelligent, and the bottles are not to be transported, the baked or even ordinary cotton may do as closure for the bottles. The fault with the sterilizers now in the market (Arnold's cooker excepted) is that there is not room beneath the basket for the requisite water (one and a half inches) to steam one hour, though they can all be used *à la* Soxhlet. A Baltimore firm is now constructing a sterilizer from plans given by the author, which, I think, will enable the user to sterilize with steam, and there will be no danger of the bottles touching the water and cracking. The completed apparatus—steam-pot, bottles, and basket—is to be sold at a price within the reach of the most modest household. Future efforts must also be made in order to obtain for the infants a milk which will be as free from contaminating elements as possible. If the sterilization in small quantities or bulk is not possible at the dairies, a strict hygienic surveillance of dairies by competent persons who can recognize diseased animals and milk, and a strict accountability as to cleanliness of animals, utensils, and hands, ought to be inaugurated. The rejection of receptacles which are unclean or composed of objectionable material will render milk-sterilization in the household still more effective than it is at present.

SUBMEMBRANOUS LOCAL TREATMENT OF
THIRTY-FIVE CASES OF PHARYNGEAL
DIPHTHERIA.*

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IN the *New York Medical Journal* for December 3, 1890, I described a local treatment of pharyngeal diphtheria, consisting of submembranous injections of chlorine water into the inflamed mucosa of the tonsils and visible pharynx by means of a syringe devised for that purpose. Seven cases of diphtheria in children thus treated were reported, not to serve statistically, but merely to illustrate the method and its feasibility. Including these, I can now report on thirty-five cases treated by this method.

Before making my report (which will be a very short one), it appears essential to recapitulate the facts upon which this treatment is based :

1. Pharyngeal diphtheria always begins as a local process, usually in one or two, very seldom in three or more, distinct spots of the throat.

2. This diphtheric process is caused by the action of certain bacilli (first described by Klebs and Löffler) entering the mucous membrane and penetrating into its lower stratum, either alone or in company of other bacteria (in particular the streptococcus found by Löffler and Prudden), where an inflammation is caused, which again results in an exudation of serum and leucocytes accumulating in the upper, epithelial layer of the mucosa, thus forming the pseudo-membrane of diphtheria.

3. Therefore the pseudo-membrane is not the disease, but its result, and, on the other hand, a safe guide to the diphtheritic inflammation below it.

4. Rationally, the chief treatment should be local. The removal of pseudo-membranes is at best useless, as the bacteria

* Read before the Section on Diseases of Children, Washington, 1891.

lodging therein are embedded, and of no further consequence when left alone; but if swabbing out the throat is practised, numerous bacilli must necessarily be pressed into living tissue, thus not alone increasing the inflammation in parts already affected, but also inoculating the poison upon regions of mucous surface so far not infected.

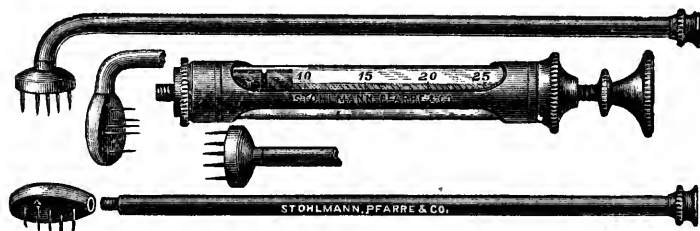
Prudden, in his "Studies on the Etiology of Diphtheria," (*Medical Record*, April 18, 1891,) makes the following statement: "It should be clearly held in mind, by those eager to draw from experimental studies on the etiology of this disease such practical lessons as shall be of value in treatment, . . . that it seems to be fully established that in all of the cases the seat of infection and the origin of the mischief is always a local one. All these experiments point to the paramount importance of *efficient local germicidal treatment.*"

Germicidal treatment has apparently been applied in numerous cases, with the result that the mortality from diphtheria in New York City during the year 1890 amounted to 1260 deaths among 4340 cases reported, equal to thirty-four per cent., and that of the last three months, ending March 28th, to 353 deaths among 1360 cases reported, or more than thirty-eight per cent.

Nowhere, probably, is the bichloride of mercury employed more in the treatment of diphtheritic patients than in New York City, and yet we have this terrible mortality. If this much-lauded treatment destroys organic life, as is claimed, then certainly it does not destroy the bacteria, according to these statistics. To give teaspoonful doses of a weak solution of the bichloride of mercury internally is not (what Prudden demands) efficient, not local, and not at all germicidal. It is not efficient, because the drug does not reach the *active* bacilli in the lower stratum of the inflamed mucosa, does not penetrate the pseudo-membrane, and glides over its outer surface into the œsophagus, at the utmost spoiling the patient's digestion; it is not local treatment, because the diseased parts are not reached, and it is not germicidal, because the solutions used are not strong enough to destroy the vitality of the diphtheritic germs, even if they were completely submerged therein.

Why not, then, wipe away the pseudo-membrane and rub strong antiseptic solutions into the diseased surfaces? Theoretically, this looks well enough; but it is not local treatment, as the yet healthy mucosa surrounding the diseased parts would necessarily be cauterized and infected; and it is not germicidal, as these strong solutions do not penetrate tissue any more readily than the weaker ones, and by rubbing them in, the deep-seated bacteria are still pressed farther into the submucous tissue of the throat, while the constant stream of the exudate from below outward prevents any fluid from entering from the periphery.

In devising my syringe, my object was to bring comparatively small but very strong solutions in *direct* contact with those bacteria which were yet in activity upon the lower stratum of the mucosa. The officinal chlorine water (U. S. P.) proved to be the strongest and safest remedy. It must be obtained fresh for each case, and ought to be kept cool and dark. A strong odor of chlorine gas proves its value.



After filling the syringe with chlorine water and pressing out the air, the instrument is introduced over the handle of a dessert-spoon into the pharynx, and the needle-points are then brought directly opposite to the pseudo-membranous patch adherent to the tonsil, the lateral or posterior wall of the pharynx. After pressing the needles to their full length through the pseudo-membrane into the inflamed tissue below, the instrument is firmly held in position by the left hand, while the right presses the fluid (usually one-half of a syringe-ful) into the mucosa. In very obstinate children, it may be necessary to use the O'Dwyer-Denhard mouth-gag. In the thirty-five cases, I was obliged to use it but once.

What, now, becomes of the chlorine water injected into the tissue? Experiments of Geppert have shown this drug to be much stronger and quicker in its germicidal action than most others employed,—in particular, the bichloride of mercury,—as it better penetrates tissue and immediately goes into chemical combination with organic matter,—in particular, bacteria. So it is non-poisonous to the general constitution, and only destroys organic matter locally. For further particulars, I must here refer to the article of Geppert and to my report of experiments on rabbits, in the paper mentioned above.

The chlorine water so brought into direct contact with the *active* bacilli and cocci of diphtheria immediately destroys them, and the process comes to a stand-still. It is essential that the injection should accomplish this object, because this contact of the chlorine and the *active* germs is the fundamental principle of this treatment. It is better to inject too deep than not deep enough, as the exudate coming from the inflamed blood-vessels of the submucosa will carry the fluid outward.

In but two cases of the thirty-five I was obliged to inject the drug on successive days. In the one, in a boy of nine years, a new patch appeared posteriorly of the right tonsil; in the other, where I had made four injections (one into each tonsil and the lateral walls of the pharynx), the process threatened to invade the soft palate of each side on the following day, and so two more injections were necessary to check the career of these bacilli. This patient, a boy of six years, was sick five days when I first saw him; the pseudo-membranes were large, protruding into and obstructing the pharynx, and had the peculiar cauliflower-appearance so characteristic of those cases where the Loeffler bacilli are found in almost pure cultures. (The specimen under the microscope, taken from this case, shows these bacilli in large numbers.) Those membranes showing a tendency to slough readily, giving a dirty, smeary appearance to the invaded mucous surface, appear to be caused by the action of a mixture of bacteria containing more streptococci than bacilli. (A pure culture of streptococci will be found on the other slide.)

It is well to inject when the stomach of the patient is empty,

yet it is best to proceed as early as possible. Nervous children naturally will fret and become excited. The pain caused by the injection is not worth a notice. Younger children are handled easier than older ones. Older children and adults will permit of the second injection being made more readily than the first, as they then know that the operation involves but slight inconvenience to them.

After having made the injections, I prescribe a mouth-wash and gargle, consisting of a mixture of one to two grammes of the tincture of iodine and ten drops of the concentrated carbolic acid to one hundred and twenty grammes (four ounces) of water; a teaspoonful to be used for gargling and swallowing alternately every fifteen minutes, from six A.M. to twelve at night. Children too young to gargle are given but five drops of the carbolic acid in this mixture, and are given half a teaspoonful every half-hour to swallow. An ointment consisting of equal parts of zinc salve and unguentum mercuriale is rubbed into the skin covering the infiltrated glands every two hours, or three times a day, according to the size and severity of the glandular swelling. This done, a narrow ice-bag, divided into equal halves by a tape wound around its centre portion and flattened by carefully pressing all air out of it, is then adjusted over the swollen parts of the neck by means of a woolen bandage pinned tightly over the head of the child.

The windows in the room are open winter and summer. The food and stimulants are carefully ordered, so as not to leave anything for the mother or nurse to guess at. The towels, bedding, clothes, etc., are carefully placed in a wash-boiler kept constantly in the room, and, when full, its contents are boiled for three hours.

In all cases where the diphtheritic process was yet localized (either on the tonsils or other visible parts of the pharynx), so as to be able to undermine the pseudo-membrane thoroughly with these chlorine-water injections, the temperature of the body not alone decreased from three to four degrees, but also the œdematous swelling of the surrounding parts diminished within from three to six hours after the procedure, and usually disappeared by the next day. At the same time the

constitutional symptoms of the patient (like back ache and pains in the limbs) disappeared, as well as nausea and loss of appetite, and in most cases the next day brought decided feeling of hunger. This symptom of hunger is the best sign of the efficiency of the injections made, and where it is wanting within twenty-four hours after the injections, I take it for granted that not all of the active bacteria have been destroyed by them. A careful inspection of the pharynx, made best by pushing the round handle of a dessert-spoon down to the epiglottis to make the child gag, will readily show the spot where another injection is necessary.

The pseudo-membranes usually remain in position for two to four days without causing the slightest inconvenience. If the injections below them are made properly, their stay in the throat involves no danger, as the bacteria within them are of less consequence, embedded as they are, than those that may possibly float about the oral cavity. The mouth-wash used every fifteen minutes during eighteen of the twenty-four hours of the day will certainly carry these off where they can do no more harm.

Of the thirty-five patients, I have lost two. The first fatal case, a boy of four years, had laryngeal and bronchial diphtheria when I was called. His pharyngeal diphtheria disappeared within forty-eight hours after the injections. He died of heart-paralysis and pulmonary diphtheria three days after intubation. The second fatal case, a girl of five years, the daughter of a physician, was much benefited by four injections into the tonsils and lateral walls of the pharynx, made on the fifth day of her sickness, as the temperature dropped from 103° F. to 100° F. within four hours and appetite appeared on the same evening, but the father wiped out the throat of the child on the next morning, without my consent, with tincture of iron, resulting in an enormous infiltration of the whole pharynx and adjoining glands, and the child died, three days after this throat-cleaning, of paralysis of the heart.

All of my other patients made a speedy and complete recovery. Not one of them developed symptoms of diphtheritic paralysis later on. In ten of the remaining thirty-three cases I found the bacilli of Loeffler in the pseudo-membranes; want

of time and other circumstances prevented me from searching for them in all cases.

But these cases are sufficient to show that the chlorine-water injections are "efficient, local, and germicidal" enough to check the career of any diphtheria germs they come in contact with.

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137 EAST NINETEENTH STREET, NEW YORK.

Clinical Lectures.

PULMONARY ABSCESS.*

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CASE I.—The written history states briefly that this child was brought to the clinic for the first time yesterday. It is nineteen months old; was first ill early in November. For two months the child was treated by the mother, who thought it was suffering simply from a cold. It had cough and slight fever. About the 1st of January a physician was called, and since then four physicians have seen the patient.

As you observe, the child has dyspnoea, a peculiar moaning expiration, very frequent respiration, symptoms which would at once direct your attention to the lungs.

We will ask the mother a few questions in order to be guided a little more definitely. Replying to our interrogatories, she says the child had not very much cough, that it was hot at night, wanted water, vomited often when it commenced to cry or cough. She does not think it ever brought up blood, but white matter, as much as a teaspoonful at a time, not with coughing, but while vomiting. It would appear, then, to have been pharyngeal and gastric mucus. Had it come up while coughing we might have suspected pus, and that the child had an empyemic abscess which had burst into a bronchial tube. It is not an uncommon thing to find, in neglected cases of empyema which have not been opened by incision or otherwise, that the pus bursts into the lungs and is expectorated through the bronchi and trachea. She says the feet have not been swollen.

On examining the baby we notice at once that it is pale, anæmic, cries almost constantly under its present surroundings. Behind, we notice a good deal of respiratory movement on the left side, and there is some on the other side; that is, the intercostal muscles act quite distinctly on the two sides, so that we may conclude that there is not a large amount of liquid in the pleural cavity. If there were, the respiratory movements would not be so perceptible. There is also a fair

* Stenographic report.

amount of pulmonary sound on the two sides, but on percussing over the upper lobes we find considerable difference in favor of the left side. There is dulness on the right side in this region. There can be no considerable amount of free fluid in the pleural cavity, either of serum or of pus. If there were free empyema, it would not cause dulness over the upper lobe, but over the lower lobe. So that if there be a pleurisy it must be in the upper part, and any exudate which may be present has been shut off by adhesions in that neighborhood. Where you find so much limited dulness on one side, it is probably wiser to look for pneumonia rather than for pleurisy. It is more common to find pneumonia in the upper lobes than pleurisy. If there be pleurisy over the upper lobes, as I said, it may be localized. But that is not very common unless to a limited extent.

On auscultation we find very little difference in the voice transmission over the two lobes. If there were a large pleural effusion, there would be less voice transmission. Posteriorly, in particular, there is a loud voice transmitted to your ear, which would exclude the possibility of there being much liquid between the ear and the lung. What dulness there is belongs to the lungs.

My assistant informs me that he aspirated this afternoon below the axillary space and withdrew about three drops of pus, which was quite thick. It came, he says, from a distinct cavity, as he was able to move the needle about in it.

It would seem, then, the case is an interesting one. The fact that the voice is transmitted direct, that the intercostal muscles move pretty freely, that there is dulness over the right upper lobe, would point to a pneumonia, not to a pleuritic effusion. And as the doctor has withdrawn pus, I would conclude that the point of the needle had entered an abscess in the lung, not a pleuritic abscess. The fact that the dulness is over the upper lobe almost exclusively would also point to the fact that we have to deal with a local process, and, as I said, pneumonia is common enough in the upper lobe, but an encapsulated, circumscribed pleural abscess is not often met with in that neighborhood. The probability, then, is that we have to do with a pneumonia extending over four or five months, first treated for two months by the mother, then in two months treated by four different doctors, the case finally coming to a public clinic. During this time the original pneumonia had sufficient time to undergo all the different stages and end in suppuration. As a rule, the diagnosis of a small pulmonary abscess is not made. The doctor did well to discover it here by aspiration.

The question arises, How shall we treat the case? Will that pus come out? Will it prove more destructive to the lungs? Is it best to wait until it breaks spontaneously into a bronchus and becomes expectorated, or is it best to cut down, try to find the abscess, and have it discharged outside? What is the condition of the lungs?

There is a local pneumonia of one lobe, which has lasted four months, and you may be sure there has been an adhesive pleurisy at the same time. Thus there is very great probability that if you open the chest where the doctor has punctured there will be no pneumothorax as a consequence, and you can get into the lung without interfering with the open pleuritic cavity, and in that respect it is perfectly safe, I believe, to dilate such an opening if it be in anything like a safe spot. Judging by the position in which the doctor punctured, the needle touched the middle lobe. My advice in that case would be to open just at that spot, no matter how deep it may be necessary to go in order to reach the pus-cavity. It is said the needle entered about one inch. Is there much danger, then, of injuring healthy pulmonary tissue by opening such an abscess? Yes, there is. It is quite possible that when you mean to open a pulmonary abscess you may have to go through healthy tissue, and it may bleed very badly. But the bleeding can be stopped in a very short time, particularly as there is no open pleural cavity, by simply tamponing. Push in a small quantity of iodoform gauze and it will stop the hemorrhage.

I recall one case of empyema which it was thought ought to be operated upon, and the aspirating needle was first introduced at the point where the opening was to be made in order to determine the presence of pus. Pus was at once found. The incision was then made, and a piece of rib was excised on incision, but no pus came. The incision was made deeper, but only a large amount of blood came. The wound was filled with iodoform gauze. Then we ran the needle in again at a different spot, and found pus quite easily. Again an incision was made and a piece of rib was excised over the place where pus had been withdrawn, but no pus could be found. There was hemorrhage. The wound was again filled with iodoform gauze. Again we punctured with the needle, and again we found pus. Then cutting down and excising a piece of rib in this third place, going a little more carefully, we found a large empyema.

Why did we not find it the first time? There is a lesson which comes in for you as well as for me. I have not forgotten it. It may be that you will until it happens to you per-

sonally. The fact is, when puncture was made the needle did run into a pus-cavity, but in going down it passed through healthy pulmonary tissue. Pus having been withdrawn, we thought we had simply a large empyema. There was a large empyema, but in addition, as frequently happens in protracted cases, different portions of the lungs had become closely adherent to the chest, separating the pus-cavity from the chest-walls, and twice when we cut down we came upon that healthy lung tissue, which caused considerable hemorrhage until the cavity was tamponed. It is always worth while to know how far your needle has entered before reaching pus. If it has to go far, it is for one of two reasons: either that the pleura has been thickened by fibrinous pleurisy to such an extent as to make the wall of the chest very thick, or that healthy pulmonary tissue intervenes between the chest-walls and the abscess.

Now, in the case before us I would certainly recommend that the child go not much longer with pus in its chest-cavity. It would seem, from the fact that the voice is so very loud on auscultation, that the pus is inside the lungs. Still, there is one possible doubt, and I speak of the doubts now because it is necessary that you learn here exceptional cases. The general run of cases you can study in your text-books. The exceptional cases you ought to study here in all their badness. In a number of cases where you have to deal with a pleural exudation, either serum or pus, it may happen that the intercostal movements are just as marked as you see them here. You can see them at a distance, and still there may be a great deal of fluid in the pleural cavity. That is more common in babies than in adults. It is most likely to occur where there are a number of adhesions binding the lungs to the chest-walls. No matter how much pus or fluid there may be, in many cases intercostal movements will be quite visible.

The presence of such adhesions sometimes has another result,—*i.e.*, they may enable you to hear the respiratory murmurs in spite of the presence of fluid in the pleural cavity, though not always as distinctly as on the other side. Especially where a large amount of pulmonary tissue is adherent to the chest-wall do you necessarily hear a good deal of the respiratory murmur, more or less normal or abnormal as the case may be. These are exceptional cases, but it is just exceptional cases which you ought to know.

INTERSTITIAL PNEUMONIA ; MITRAL INSUFFICIENCY ; LOCAL REFLEX CHOREA.

CASE II.—The following history was obtained in the next case through the quizzing of students:

The patient, a girl aged about thirteen years, brought to the clinic by her mother, has been sick three years. We are told that she took a cold three years ago. Was not confined to bed. Did not raise blood, but coughed a great deal. If this coughing were only in the morning it might come only from the pharynx, and be caused by drying up of mucus during the night's sleep. But the mother says she coughs more or less all day. Yes, it may then be due to the condition of the respiratory tract, heart, lungs, pleura, or stomach.

Placing the ear over the heart, we hear a loud systolic murmur transmitted to the left, not heard over the aorta, due to an old endocarditis. Inspection shows readily a difference between the two sides of the chest, above and in front. The right side is quite retracted compared with the left. What may that retraction be due to? You state that it may be due to chronic thickening of the pleura. Would chronic thickening of the pleura have any such influence on the shape of the chest? No, I hardly think the pleural exudate would so contract as to pull the ribs in, especially in this neighborhood. It is possible that an internal process would have that effect, but not a pleural one, rather a pulmonary, then. Imagine what takes place. When you have a pleurisy you have a liquid exudate or a fibrinous exudate. If it be liquid it may become absorbed, and very little change take place in the pleura. If fibrinous, the pleura becomes thickened afterwards. Sometimes you see such a pleura on the post-mortem table twice, five, even twelve times as thick as normal. That would not be likely to cause sinking in of the chest.

But if you have a pneumonia of the kind called interstitial pneumonia, where the process is not in the alveoli of the lungs, or where it does not originate in the bronchi, but in the interstitial tissue, such a pneumonia goes on, as a rule, with very little cough, sometimes lasts quite a while,—a great many weeks,—with moderate or high fever, and throws out a great deal of new connective tissue. This will after a while indurate and cicatrize, so that where you had hyperplasia first there will afterwards be cicatrization and retraction of tissue. That is of very common occurrence, particularly over the upper lobe. You will see a great many cases in after-years in which there is more or less falling in of a given portion of the chest, some flatness on percussion, more or less bronchial respiration, particularly expiration, cases in which you will be inclined to make a diagnosis of tuberculosis, but which are nothing more nor less than the after-results of an interstitial pneumonia. Your neighbors will make a diagnosis of tubercular phthisis, but, remembering the remarks which you have heard to-day,

you will correct the error and call them cases simply showing the after-results of interstitial pneumonia. While in them there is a good deal of retraction, yet usually there is not so much as we see in the case before us.

Imagine you have to deal with an inflammatory process of the lungs throwing out hyperplastic tissue in the beginning, and afterwards atrophy taking place in the tissue thrown out around the air-cells and bronchial tubes. What must occur? There will result a solid mass of connective tissue, massive at first, atrophied later on. You have open bronchial tubes, and the result must be bronchial respiration and bronchophony. When the cicatrization of the newly-formed tissue has been very intense there is even retraction of the bronchial tube entering the mass, the tube becomes dilated, forming a cavity, and you may hear cavernous breathing where formerly there had been healthy lung. Thus you may have cavernous breathing, bronchophony, and bronchial respiration in such a case, making the diagnosis of phthisis very likely, especially if there be purulent material in the cavity. Indeed, the diagnosis of advanced cases of that kind sometimes cannot be made. But if you find the general health fairly good, and that after repeated examinations the sputa contain no tubercle bacilli, that the expectoration is not constant, not taking place with every cough, but that now and then the patient expectorates a large quantity of muco-pus, which has a peculiar, sometimes very offensive, odor, and cavernous breathing comes on after such a discharge and disappears again when the cavity becomes refilled, you may under such circumstances make the diagnosis of a dilated bronchus instead of pulmonary abscess.

Besides the retraction apparent on inspection on the right side, we find dulness on percussion, and on auscultation bronchial respiration, and the voice considerably increased, the case being a very excellent illustration of the class I have described. The interstitial pneumonia must have occurred during childhood, although the mother claims that the child was never sick. But in a poor family, where everybody works, where there are many children (four in this case), the babies are frequently sick and the people do not know it, or do not mind it. If the child does not die, they forget all about it. In the case before this you will remember that the child was sick for two months, during which time the mother did not consider it sufficiently ill to call in a physician. An interstitial pneumonia does not always attract the attention which another pneumonia would, either broncho- or genuine pneumonia. Very frequently it comes on on the sly and is hardly noticed. There is a little subacute fever, a very little cough ;

indeed, interstitial pneumonia does not give rise to any cough, except as it is complicated with a broncho-pneumonia, or croupous pneumonia, or bronchitis; for as long as we have to deal with nothing but a proliferation of connective tissue there is no irritation of mucous membrane, and you may have very extensive connective-tissue proliferation, which may prove very destructive to function in later life, yet there be no cough. Thus there may be no symptoms to attract especial attention for some time. Such a pneumonia does not run a regular course like genuine pneumonia. It may go off as slowly as it has come. There may be a week or weeks of fever, which may not even be recognized by the parents. They may say the child is a little ill, or that it is teething, or that it has worms, as they suppose every child must have, or that it has a cold, making a diagnosis which was made even by the family physician, shall I say, in charity, a hundred years ago? But now, with our diagnostic facilities, and with a knowledge that interstitial pneumonia is not at all infrequent in children, either uncomplicated or complicated with another form of pneumonia or with bronchitis, we ought not to be easily misled. Here is the result of a mistake.

But there is something else the matter with this girl. Yes, anæmia, but something else. She has a twitching of the muscles of the face. As long as the spasm is confined to the muscles supplied by one nerve,—the seventh in this case,—I think it is better not to speak of it yet as a chorea, but as a spasm of those muscles, or an affection of the nerve supplying them. What can that be due to? Yes, it might be due to a neuritis of the facial nerve. But the mother says she has had it for a year, and if a neuritis it would have ended in recovery or paralysis during that time. I think, then, you will have to drop the diagnosis of neuritis. You say it might be due to a habit. Yes, when the spasm is confined to the face it may be due to habit. But the forehead does not seem to participate in it here, and when it is a habit it is usually a little more extensive. As to anæmia, while this is now and then the cause of a general chorea, it is not so likely to give rise to a local chorea. Hysteria is suggested. Hysteria may be the cause of all kinds of symptoms, either local or general, but then we have no other signs of hysteria here.

When you have an affection of muscles supplied by one nerve, look at all events for a local cause. Reflex conditions are very frequently the cause of general and local convulsions. The reflex convulsions of infancy and childhood are well known. Any little irritation of the intestinal tract, for instance, may result in general eclampsia, or a reflex irritation

from an old cicatrix pressing on a nerve may give rise to general convulsions. On the other hand, local convulsions may take place from local irritation. You observe convulsive contraction of the diaphragm and other respiratory muscles, for instance, from tickling of the nose. A local nasal irritation will give rise to sneezing, which is a local convulsion. It may give rise to an attack of asthma, which is more or less a local convulsion, for there is convulsive contraction of some of the muscles belonging to the respiratory system, and particularly of the muscles belonging to the bronchi. You may have sometimes noticed in children convulsive twitching, as winking, shrugging of the shoulder, frowning, from no other cause but a subacute or chronic nasal or naso-pharyngeal catarrh. In the beginning the convulsions are always confined to the face. The mucous membrane of the nose and pharynx is under the influence of the trigeminus. Its effect is to produce reflexes in the motor nerves, here the facial. In a number of such children who have chronic catarrhs you observe peculiar movements, as sniffing which accompanies a cold, a constant winking, an occasional frown, a twitching such as this girl has, sometimes extending to the shoulder, causing a shrugging of the shoulder on one side. It seldom goes any further. I have seen a very few cases in which a general chorea would follow simply the presence of a catarrh of the mucous membrane of the nose and pharynx. But in most of the cases which I have seen the convulsions were confined to the face. I have described that as a partial chorea, sometimes terminating in general chorea. I was tempted to do that because I had seen a few cases in which after the convulsions had remained local a long time they finally became general.

While speaking of chorea arising from the condition of the nose and pharynx, I may say that you will find on examination a very red pharynx, a good deal of mucus deposited over it, a subacute or an acute catarrh. The mucous follicles are very much elevated, a part of the mucous membrane shining, looking denuded of its epithelium. In the case before us there is evidently a catarrh, not so much of the anterior nares as posteriorly and in the pharynx, and to this local irritation I believe the facial convulsions to be due. I hope you will remember these remarks, for it may be some years before they get a place in the text-books.

What would you do to cure her of the facial convulsions? "Treat the naso-pharynx." But what would you do in that line? "Use sulphate of zinc spray, or listerine." No, we would not use listerine. Nobody uses listerine in this country.

It is a proprietary medicine. "Sulphate of iron." No, sulphate of iron has a disagreeable effect on the mucous membrane. It coagulates the mucus and makes it hard, the result being irritation and hawking. "Boracic acid." That is a good remedy if you do not wish to use an astringent, but only a disinfecting and cleansing solution. Even persistent washing with a solution of salt of physiological strength, one to about one hundred and thirty, will often prove sufficient to allay or remove a very protracted catarrh. But I should approve of boracic acid, two, three, or four per cent., as a spray, or to inject into the nose. When you do inject you want to be careful. Do not use very much force, else you may injure, through the Eustachian tube, the middle ear. The patient, if old enough, can pour the solution in as from a teaspoon.

I should, perhaps, prescribe a salt solution a few times a day, which may be poured into the nostril, or, the girl being big enough to pay some attention to herself, tell her to take half a pint of tepid water, put half a teaspoonful of salt in it, pour it into the hand and suck it up into the nose, not very forcibly, but gently, letting it pass back through the nose. Let her repeat that ten or fifteen times until she has finished the glassful, employing the method night and morning. Further, you would very probably change the condition of her nasal mucous membrane for the better by an occasional spray of nitrate of silver, say half a grain to an ounce of water; at any rate, not more than a grain to an ounce. Spray in not from behind, but from in front. See that you have a spray nozzle which does not hurt. This patient is sensible enough to keep still. Little people will not remain still, and for them you must always cover the nozzle to near its end with soft rubber tubing, so that they will not be harmed while tossing about. The spray and cleanliness will effect a cure.

For the heart trouble she might take digitalis. We find by the area of dulness over the organ that it covers an unusually large space, especially laterally, due originally to hypertrophy of the left ventricle, to which has been added hypertrophy of the right ventricle. Hypertrophy of the right ventricle causes tilting of the organ over to one side, so that, instead of lying vertically, it assumes a diagonal position. She might take two minims of the fluid extract of digitalis three times a day.

For the lung trouble, your suggestion to make counter-irritation with tincture of iodine or other irritant would be of little value. You might as well try to change this old scar on my arm by this means as to try to produce any effect upon the

cicatricial tissue at the seat of the old pneumonic process. It would have no effect whatever. The process is ten years old; you cannot do anything with it. Iodine given internally would be worse than thrown away, as it would not only have no effect on the cicatricial mass in the lung, but would act badly on the mucous membrane of the stomach. Medicines will do her lungs little good. The only way in which she can be benefited is to strengthen the heart. After a while pulmonary gymnastics can be carefully instituted. She should sit straight, get into the habit of inhaling deeply; later, she can walk up-stairs slowly, and up-hill, both for the purpose of strengthening the heart and expanding the chest.

Clinical Memoranda.

THE THERAPEUTICS OF DIPHTHERIA.

BY S. J. RADCLIFFE, A.M., M.D., WASHINGTON, D. C.,

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IN reviewing the vast amount of accumulated literature of the therapeutics of diphtheria we find opinions of medical men so widely different that in times of emergency we are often at a loss to know what to do or to recommend.

No doubt many cases of "diphtheroid" sore throat would get well with very little treatment, but others in a more advanced condition require active measures, while others again with pronounced symptoms are doomed from the first, the absorption of the poisons and the local trouble advancing so rapidly as to overwhelm the system and make any and all treatment of no avail.

Diphtheria of the nose, throat, vagina, conjunctiva, and the mucous membrane of all the external air-passages, says Dr. Ludwig Stumpf, is primarily a purely local disease, and this primarily local disease can, in its further progress, lead to a general infection of the body without exception.

Most of the constitutional diseases are produced by absorption of infective germs through the glands of the mouth and throat, especially by way of the crypts of the tonsils, and in this way there is but little doubt diphtheria originates,—first,

from local infection, with propagation of the microbe, and then absorption of the products of its rapid cultivation. The local symptoms as well as the constitutional disturbance set up by the passage in this way of the diphtheritic microbe or ptomaine are in proportion to the rapidity of the proliferation and absorption.

From the local nature of the disease (again quoting Dr. Stumph, *Deutsches Archiv für Klin. Med.*, December, 1884, and *Medical News*, January, 1885), it is manifest that local treatment alone, and thus the subjugation of the disease at its primary point of appearance, will perfectly fulfil the present scientific aspects of its nature.

The rational treatment of diphtheria, therefore, would be to first attack the microbic element at work at its point of entrance in the pharynx or naso-pharynx, and an attempt made to destroy its vitality, or the tissues upon which it is propagated, and before it can have time to pass into or through the dilated lymph or blood channels to the system at large. If this secondary condition should supervene, and the systemic be added to the local affection,—which is more or less according to the amount of infection imbibed,—a wider field of therapeutics is required, though the efficiency of treatment in this universal infection is far less, and the chances of failure far greater.

As it is of the utmost importance to arrest further evolution at the initial stage, it is necessary that the case should be seen and diagnosed early. And here the attendant's knowledge and power of discrimination is frequently put to the test. He must be able to differentiate at once between the different membranous affections of the throat, clinically, anatomically, and pathologically,—which in some cases it is almost impossible to do,—and he must be able to appreciate with the utmost certainty the extent of the disease, and whether or not it possesses the characteristics of benignity or malignity.

Should the second or constitutional stage be added to the first or local stage, the conditions become graver, and general treatment must then be instituted supplementary to the local treatment, and a great deal now will depend upon energetic, careful, and judicious management of the case, for it is in this general diphtheritic condition that most cases are lost. It sometimes happens that the patient is first seen in this state, for, in exceptional cases, the condition of the throat does not show the typical false membrane or exudate or give the true index to the amount of injury involved. The true local sign is either out of view or has passed on to light up other foci of infection.

The patient is then found in a feeble state of vitality, and the feebler the constitution or the more enervated the patient may be from natural or accidental causes, from depressing influences, overtaxed energies as by watching or nursing, the more is added to the uncertainties of the final result.

Asthenia is a common result of the continued action of the poison upon the system, general feebleness of the muscular tissue of the body being notably observed. This is shown particularly upon the cardiac muscles, producing quicker, weaker action of the heart and sighing respiration from incomplete oxidation and irregularly lessened blood-supply, and death frequently takes place, beginning at this point, either from failure of the organ to carry on its legitimate function from sheer exhaustion or from general enervation, or else the muscles of deglutition may be seriously impaired, and death close the scene by asphyxia, from lodgement of food, either by compression of the over-filled and dilated œsophagus upon the larynx or trachea, or by misplacement of foreign substances into the air-passages. Both conditions are often seen, and I have myself recorded instances of these characteristics in the termination of the disease.

What is most desirable, therefore, is a systematic but intelligent course of treatment applicable to a majority of cases of diphtheria, based on scientifically-observed facts,—a course which may be relied on, especially in the first instance.

Such a course of treatment is impossible in the present state of knowledge. There cannot be a uniform system of therapeutics proposed in view of the many phases in which the affection is presented to us. The instability of remedial agents is well known, in this, at least, that many which have proven successful in a series of cases have entirely failed eventually to meet indications, though given under the same circumstances. If the disease was always of a definite character, and always pursued an even and regular course, it might be possible to formulate a positive and uniform course of treatment. But this is not so, for, while, as a general rule, diphtheria attacks by preference the debilitated and enfeebled in health, it sometimes is the case that the robust and strong fall equally preys to its ravages; indeed, in many cases it is difficult to determine which condition invites or renders the subject of it susceptible to the disorder, and from its first observation it is exceedingly uncertain what the end will be.

We can, however, by exclusion winnow out the wheat from the chaff, and, taking a rational view of the etiological and pathological state presented to us, do much to improve what now is very uncertain and very unreliable.

The class of remedies which should first claim our study are evidently those placed in the category of disinfectants, antiseptics, or germicides,—those agents capable of arresting the growth or destroying the microbe of infection through which the disease is introduced into the system.

Disinfectants are defined to be agents capable of destroying the infective power of infectious material, and the object of disinfection is said to be to prevent the extension of infectious diseases by destroying the specific infectious material which gives rise to them. The definition for disinfectants will answer very well for antiseptics, which mean literally against septic poison or putrefaction. Some experimenters embrace all these terms under one head, while others restrict each one to its proper field of action.

The value of disinfectants or antiseptics depends upon their power to destroy the germs or spores of infective microbes, or infectious material generally, and of particular disinfectants to destroy particular infection, as the infectious material of the disease now being considered. Dr. Sternberg says (*Medical News*, January, 1885) there is within certain limits a difference in the resisting power of different organisms (*e.g.*, the bacteria of putrefaction) to chemical agents, but this is not sufficiently marked to prevent the general statement that a disinfectant for one is a disinfectant for all in the absence of spores. He also states that an agent which in a certain proportion, and in a given time, acts as a germicide, in a smaller quantity may act as an antiseptic; *i.e.*, it may prevent putrefactive decomposition by restraining the development of the bacteria of putrefaction. Antiseptics also prevent or retard the development of pathogenic bacteria. It follows from this that germicides are also antiseptics, but the reverse of this proposition is not true as a general statement, for all antiseptics are not germicides.

Neither disinfectants nor antiseptics are strictly of any avail in this disease, unless they are also, and at the same time, germicides; unless they kill not only the micro-organisms, but the spores, or seeds of germination, by which they are propagated.

In speaking of therapeutic agents, therefore, applicable to infectious diseases, we must take into consideration those which are able to act not only as antiseptics, or disinfectants, which possess the power to prevent putrefactive decomposition, and hence restrain the development of bacteria of putrefaction, but also germicides, which destroy the vitality of micro-organisms *in toto*, germs and all. Of course we have to trust to the integrity of scientists in this line for results of investi-

gations, and accept the proposition that comparative investigations offer us, and believe they will fulfil the ends suggested as well practically as in theory. The agents usually considered and in common use as disinfectants, and which are also considered germicides, are carbolic acid, creosote, ferric sulphate, hydrochloric acid, iodine, mercuric bichloride, potassium permanganate, salicylic acid, sodium biborate, alcohol, sulphuric acid, sodium hyposulphite, zinc chloride, zinc sulphate, sodium sulphate exsiccata, together with arsenite of potassium, citric acid, caustic potassa, chloral hydrate, potassium iodide, and many others of minor importance.

Dr. Sternberg (*Amer. Jour. Med. Sci.*, April, 1883) arranges these according to their germicidal value as follows :

Mercuric bichloride (0.005 per cent.), efficient in the proportion of 1 part in 20,000.

Potassium permanganate (0.12 per cent.), efficient in the proportion of 1 part in 833.

Iodine (0.2 per cent.), efficient in the proportion of 1 part in 500.

Creosote (0.5 per cent.), efficient in the proportion of 1 part in 200.

Sulphuric acid (0.5 per cent.), efficient in the proportion of 1 part in 200.

Carbolic acid (1 per cent.), efficient in the proportion of 1 part in 100.

Hydrochloric acid (1 per cent.), efficient in the proportion of 1 part in 100.

Zinc chloride (2 per cent.), efficient in the proportion of 1 part in 50.

Tincture Ferri chloridi (4 per cent.), efficient in the proportion of 1 part in 25.

Salicylic acid dissolved by borate of sodium (4 per cent.), efficient in the proportion of 1 part in 25.

Caustic potash (10 per cent.), efficient in the proportion of 1 part in 10.

Citric acid (12 per cent.), efficient in the proportion of 1 part in 8.

Chloral hydrate (20 per cent.), efficient in the proportion of 1 part in 5.

Comparing the quantity of each reagent required to destroy vitality with the minimum quantity which will prevent development for the micrococcus of pus, he gives the following figures : Percentage of mercuric bichloride required to destroy vitality, 0.005 ; percentage to prevent development, 0.0003 ; of iodine for the first, 0.2 ; for the second, 0.025 ; of sulphuric acid for the first, 0.25 ; for the second, 0.12 ; for carbolic acid for the first, 0.8 ; for the second, 0.2 ; alcohol for the first, 40.95 ; for the second, 20.10 ; for sodium hyposulphite, thirty-two failed for the first, and 4.8 for the second ; ferric sulphate failed in sixteen per cent. for first, and for second required 0.5 ; boracic acid failed for first in four, and for second required 0.5 ; sodium biborate failed for first in four, and for second required 1-0.5.

He states also (in Table II.) that in general those reagents which destroy vitality of the micrococcus of pus are destructive of other organisms of the same class, and their relative

value as germicides is not changed when different micro-organisms are used as a test of this value.

Most of those agents named above may be used topically,—mercurial bichloride a little more cautiously than the rest,—and many of them may be employed internally, but not in sufficient quantity, it may be, to destroy germs of disease when dispersed throughout the system. We have in them, however, potent germicidal agents, which may be relied upon in treating the local manifestations of diphtheria. It is necessary to select from this list (whose value is defined above) those most active and efficient, according to the urgency of the case, and not take them here and there indiscriminately. For instance, beginning at the top of the list, one part in forty thousand of mercuric bichloride will prevent the development of the septic micrococcus; one part in twenty thousand will be efficient as a germicide; one part in four thousand of iodine will prevent the development of test organisms; one part in five hundred will have germicidal value; one part in eight hundred and thirty-three of permanganate of potassium will destroy the vitality of most germs, and so on. Boric acid and sodium biborate are efficient agents in restricting the multiplication of the putrefactive organism *Bacterium termo*, and so alcohol, creosote, and salicylic acid are measures efficient, though lower in the scale than those first named. As before said, we must rely upon the honesty and scientific nature of these tests and the conclusions drawn from these investigations, and take it for granted that a germicide for one organism is good for all, and then we may accept them confidently and apply them with equal success in the destruction or arrest of the septic principle believed to be contained in diphtheritic organisms. What the form of the bacteria of diphtheria is has not yet been definitely demonstrated, but that the contagium of the disease is by some form of micro-organism no one will at present doubt. If the case is protracted, not aborted in the first stage, and general infection takes place, though there is no known remedy within our knowledge with which we can combat it in sufficient quantity to be of any service, we can make the attempt, for much can be done to support the patient while the poison is being slowly eliminated, which is a possibility.

In a typical case of diphtheria, after active local treatment by disinfectants (which must always be applied in the form of spray), which does not yield readily, my treatment is to prescribe sodium sulpho-carbolate in doses of three to five grains, at short intervals, varied according to the age of the child, and to begin at once with alcohol in the form of brandy or whiskey, and keep it up constantly to the end, without regard

to the condition of the pulse. I have given to a child of five years forty-two ounces of brandy in seven days without the least trace of intoxication or any evil effect upon the nervous system. In fact, it was *the* remedy, for I believe by the constant saturation produced it had a powerful effect in restraining the further extension, if it did not absolutely destroy the essentials of the disease itself. This has been the course of treatment I have pursued for years, and I have no reason to regret it. I might say, which might seem marvellous, I have never lost a case of diphtheria under this management. I had one case, in which I was in consultation, die during convalescence from sudden paralysis of the heart. In this case I do not think sufficient alcohol was given.

Some practitioners rely upon calomel in all stages of the disease. Dr. Brouse, of Canada, gives forty grains at a dose, and one hundred grains in twenty-four hours. Dr. Rossbach, of Berlin, relies entirely upon papayotin, which he believes will frequently render tracheotomy superfluous, and reduce the mortality incident to the disease. Dr. Fletcher Ingalls, of Chicago, gives one and two grains of calomel every hour.

The object of this paper is to endeavor to point out some rational course of treatment of diphtheria, especially in the first instance, and is intended by no means as an exhaustive treatise, and what I would emphasize in conclusion most strongly is, if we lose our opportunity to subdue the infectious or malignant character of the affection in this first stage our chances of success are reduced at least one-half.

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RESECTION OF THE ASTRAGALO-SCAPHOID ARTICULATION FOR AGGRAVATED FLAT-FOOT.*

BY CHAS. N. DIXON JONES, B.S., M.D.,

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During the year 1889 I operated on a case of aggravated flat-foot according to the method of Ogston, which has for its object the ankylosis of the astragalo-scaphoid articulation, after restoration of the arch.

The history of the case is as follows: K. K., ten years of

* Read before the Orthopædic Section of the New York Academy of Medicine, January 16, 1891, with exhibition of case.



FIG. 3.—FLAT-FOOT PRIOR TO OPERATION.

From a Photograph.



FIG. 4.—FLAT-FOOT SUBSEQUENT TO OGSTON'S OPERATION.

From a Photograph.

age, was admitted to the Children's Hospital, under my care, on January 21, 1889, suffering from flat-foot. She was a strong, healthy-looking girl. When admitted she asked that some operation might be done which would afford her relief, as the deformity caused her very great pain and suffering. On examination I found that the inner side of the right foot in its whole length rested on the ground, the astragalo-scaphoid joint forming a well-marked prominence, as is shown in the illustration.

On the 1st of February the operation was performed, a mixture of ether and chloroform having been administered by means of a Clover inhaler, the foot was thoroughly cleansed with soap and water, washed with a bichloride solution, and then with ether. Assisted by my colleagues, I operated as follows: An incision one and a half inches long was made parallel to the sole of the foot, its centre corresponding to the middle of the astragalo-scaphoid joint. In a healthy foot Chopart's line lies one inch in front of the internal malleolus, but in a deformed foot, owing to the abnormal shape of the astragalus, it lies an inch and a half in front of it, and one-fourth of an inch back of the joint; so that the incision, beginning one inch in front of the malleolus, will have its central point over the joint. The incision was carried straight down to the bone, dividing no important structures. If the first incision does not penetrate the capsular ligament, another application of the knife will accomplish this. To gain access to the joints, the attachments of the capsular ligament to the scaphoid were dissected, both upward and downward. By this means a T-shaped opening was made in the joint, and the articular surfaces were then brought into view. The next step in the operation was to denude the articular surfaces of the bones. This was done with an ordinary stout chisel, half an inch broad and bevelled on one side. I then found that I could restore the arch of the foot perfectly. The next step was to fix it in proper position; in accomplishing this I departed from the method pursued by Ogston,—instead of using ivory pegs I drove a long nickel-plated steel nail through the scaphoid bone into the astragalus, thus holding the bones in their new position and maintaining the arch.

The edges of the wound were then brought together with catgut, and a few threads were inserted as a drain. The entire foot was enveloped in an ordinary dressing of bichloride gauze, and then done up in a plaster-of-paris bandage. Little or no pain was experienced after the operation, and the temperature never rose above 99° F. The first dressings were removed on

the 14th, two weeks after the operation, when the wound was found to be entirely healed. A second plaster splint was then applied, and the patient kept in bed for eight weeks. The results are excellent. The patient now walks comfortably, and the restored foot presents a remarkable contrast to the photograph taken before the operation.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, April 9, 1891.

AUGUST CAILLÉ, M.D., *Chairman.*

THE PREVENTION OF DIPHTHERIA.

THE chairman made some remarks, introductory of this subject. During the year 1890 there were reported to the health authorities three thousand cases of scarlet fever, with three hundred and fifty deaths; nine thousand cases of measles, with seven hundred deaths; four thousand five hundred cases of diphtheria, with fourteen hundred deaths. These figures represented about the annual average. They were sufficiently large to lead physicians to ask, what could be done in the present state of our knowledge to prevent the occurrence of infectious diseases in large communities? To-night we were to discuss the prevention of only one—the most fatal—of the infectious diseases, namely, diphtheria.

It must be admitted in the beginning that we had no specific cure for diphtheria. Our methods of treatment were rational. We must admit, also, that the mildest cases of so-called sore throat might turn into the severest form of diphtheria. If, then, there were methods of prophylaxis, we should make them known to the community.

When one knew the direction from which a foe was going to attack him, he fortified himself in that direction. Diphtheria usually attacked its victims in a certain spot, especially when it found that spot diseased, injured, and weakened. We knew that naso-pharyngeal catarrh, that filthy gums, that a mouthful of carious teeth predisposed to diphtheritic inflammation. We also knew that a congested mucous membrane, as it was seen in scarlet fever, whooping-cough, and measles, also predisposed to diphtheritic inflammation. He said that we had also learned that where we were able to keep these

mucous membranes in a comparatively healthy condition we were able to ward off diphtheria in many cases. This had been accomplished by means of the naso-pharyngeal toilet. He wished to state emphatically that there was a great deal of prophylactic power in such methods.

It was not the object to-night to instruct the public in the details of individual prophylaxis; that was left for the several physicians to do in dispensary and private practice. It was rather the object to-night to speak of municipal control of infectious diseases, and in that respect a word was to be said to the Health Board and the Board of Education. We admired what efforts they had made to prevent infectious diseases in this city, and appreciated the difficulties which they labored under, but it was to be affirmed that municipal control of infectious diseases was inadequate, particularly with regard to public and private schools. The schools were great centres for the dissemination of infectious diseases.

What could be proposed as a remedy? He answered, the daily inspection of the schools and scholars. This might sound like an enormous undertaking, but it was believed to be actually possible and practicable. Perhaps it need only be undertaken among the poorer classes at first. Two hundred and fifty thousand dollars would cover the annual expense, which was nothing for a community as large as New York to bear. The results would far more than justify the expenditure. He said the opinions of able and thoughtful men in the profession and community had been invited and would be given during the evening.

CAUSES, NATURE, AND PREVENTION OF DIPHTHERIA.

Dr. J. Lewis Smith read a paper with this title. It was largely in line with the paper presented at the previous meeting, a report of which has already appeared in the *ARCHIVES OF PEDIATRICS*. To no other disease of childhood had so much study and experimentation been given recently as to diphtheria. This was not surprising when one considered the number of victims which it claimed annually. A recent French writer had stated that the deaths in France were numerically in excess of the births, mainly in consequence of the prevalence of this disease. In London diphtheria had been steadily increasing for a number of years. The deaths caused by it in London in 1889 were fifteen hundred and eighty-eight. This number would be much increased had it contained the cases classified separately as croup.

Regarding the causation, the author said it was now known

that true diphtheria was caused by a linear or rod-shaped micro-organism, a bacillus called the Klebs-Löffler bacillus. Pseudo-diphtheria, having a false membrane, which on gross inspection could not be distinguished from that of true diphtheria, might be caused by other micro-organisms, such as the streptococcus and staphylococcus, but, unlike the former, these did not produce a ptomaine capable of leaving diphtheritic paralysis and affections of the internal organs. It was not necessary to speak on this occasion of membranes resembling that of diphtheria caused by chemical agents. The form of diphtheria appearing in the course of the eruptive fevers, scarlet fever, and measles, was usually pseudo-diphtheria. He said that the twenty-four cases of diphtheria, which Dr. Prudden had reported as not having contained the Klebs-Löffler bacillus, were at present regarded by Dr. Prudden as having been of the pseudo-diphtheritic order, for in none of the cases was there a history of paralysis. Other cases examined by this bacteriologist had shown the Klebs-Löffler bacillus.

The modes of propagation were by the breath, by the air of the sick-room, by coming in contact with infected clothing, etc, for the virus was very tenacious. There were many mild cases of true diphtheria occurring in persons who rode in public conveyances, in school-children, and others who might not suspect that they had the disease, yet were conveying it to the public. He believed that many of our school-rooms had been for years constantly spreading diphtheria by the virus which had become fixed in the walls, the dust of the ceilings, etc.

Dark places, as cellars, were very likely to hold the germs, and since the sewers had become infected, commencing many years ago, there was a constant source for new outbreaks of the disease, especially in houses where the pipe connections had become broken or in any way faulty. He said that children were constantly contracting diphtheria by inhaling sewer-gas poison. Cases had been published in which the disease had been contracted by drinking milk; also from domestic animals, particularly the cat, although some bacteriologists had expressed a doubt as to the disease occurring in animals being true diphtheria. The author then spoke of the great vitality of the diphtheritic virus, it having been known to cause an outbreak after months or years.

As to prevention, he said it was evident from the insidious nature of diphtheria that its prevention, especially in cities, was very difficult, and its total suppression probably impossible. Certainly the co-operation of the Health Board, city authorities, and laity was necessary to check the extension of

the scourge. The duty of the physician was to instruct the nurse, family, and others how to prevent the spread of the disease from individual cases, by disinfection, cleanliness, ventilation, cure of sore throat, etc. As to the Board of Health, he thought more effectual measures might be taken than simply burning sulphur in infected rooms. The walls and floors should be washed down with a solution of corrosive sublimate, the walls calcimined or painted, the floors painted. The school-buildings should be frequently subjected to the same treatment. He approved of Dr. Caillé's suggestion, to have the throats of all children examined each morning by a physician when they entered school. He thought a committee should be appointed by the section, to confer with the Board of Health and Board of Education, prepare a circular for distribution, instructing parents on points bearing on prevention of diphtheria. These remarks applied to asylums and public institutions in general, as well as to school-buildings.

Dr. Joseph D. Bryant, member of the Board of Health, being unable to attend the meeting, sent a written communication. He said that for three years, at least, the Health Department had exercised its best endeavors to control the infectious diseases in this city. So far as small-pox was concerned, their efforts had been rewarded by phenomenal success, but with others one could only ask how much worse they would have been had these efforts been abandoned. He spoke then of two of those efforts, namely, of the disinfection of infected rooms; second, of disinfection of infected fabrics. At the present time the infected room was exposed to sulphur fumes, an old-time method which might not appeal strongly to the judgment of recent scientific investigators. A better plan was desirable, one more in keeping with modern research. The germs found a good resting-place in the cracks of rooms, ornamental papers, and uneven surfaces generally. These should be cleansed by washing down with a disinfectant, or in some way thoroughly cleansed when exposed to infectious disease. But for the Board of Health to personally see that such measures were carried out during an epidemic would require an army of men at their service and an unlimited treasury. It would seem only possible for the Board to order it to be done. If it were not done, the only course for the Board at present was to have the room vacated, but that did not improve matters, as it caused the infected family to go elsewhere to spread the disease, and left the infected rooms for unsuspecting families to move into. He thought legislation was necessary compelling owners of tenements and flats to have the walls and ceilings so constructed as to easily permit of thorough disinfection.

With regard to disinfection of infected clothing, etc., the health department had had constructed, under the supervision of Drs. Prudden and Biggs, a perfect apparatus for this purpose, where any articles for disinfection would be subjected to high heat and rendered perfectly safe, and then returned.

Dr. T. Mitchell Prudden then read a brief paper, stating at the outset that some of his remarks had been anticipated in Dr. Smith's paper. He said the problems were no longer general, but special. The story of each disease could and must be studied by itself. The power of resistance to germicidal agents differed in the case of different pathological germs. The relation between the body and the invading disease-germ, recognized as predisposition or vulnerability, must constitute an important factor in any system devised for prevention and treatment of acute infectious diseases. It followed from this that measures for the prevention of diphtheria must be based on a knowledge of the specific germ which caused the disease, and its relations to the body. It might be regarded to-day as definitely established that pseudo-membranous inflammations might be due to a variety of causative agents. While it might not always be possible to determine their value on clinical or anatomical grounds, yet it probably could be with the assistance of bacteriology.

Dr. Prudden divided cases of diphtheria into two classes: first, those of true primary diphtheria, or true diphtheria, caused by the Loeffler bacillus, the general symptoms looked upon as a bacteriological intoxication. The bacillus of Loeffler located itself under the more superficial part of the mucous membrane. It might, in exceptional cases, be present on the mucous membrane, causing diphtheria without accompanying pseudo-membrane. It was tenacious of life, might remain vital for weeks or months, and might convey the disease when contained in fresh discharges or in the form of a dust floating in the air. The second form of diphtheria, or pseudo-membranous inflammation, was accompanied by a false membrane, caused by different forms of micro-organisms, as by the streptococcus. He thought the isolated cases of a false membrane in a disease of animals need not be considered of practical importance in the study of human diphtheria. Of the two forms of diphtheria mentioned, that caused by the Loeffler bacillus was the most important. It might also have as a complicating factor the streptococcus, which might penetrate deeply into the mucous membrane, but to what extent this contributed to the symptoms of true diphtheria would have to be shown by future study. So far as prevention and treatment was concerned, it had been considered wise by many

to regard true and pseudo-diphtheria as practically the same. We had now something definite to kill by our disinfectants, something positive to combat in treatment. We knew how long the germs could live under given conditions; we knew to what agents they most readily succumbed; how they could be conveyed from the sick to the well. As to prevention, he was disposed to place the initiative with the physician rather than with the health officer.

Two distinct things might be accomplished by the use of germicides,—first, to kill the germs at the local lesions by as powerful agents as we could command; second, to use in greater abundance and frequency milder agents, sprays, etc., which were known to prevent their proliferation.

The author spoke of personal prophylaxis in preventing spread of the disease, the disinfecting of clothing, etc. As to sulphur fumes, he again expressed his views of their inefficiency. As to the diagnosis between true diphtheria and pseudo-membranous inflammation, it could be made by biological culture method. This might be of special importance in asylums. He strongly condemned quarantining children only suspected to have diphtheria with those known to have it. They should have a special quarantine. He thought the streptococcus and staphylococcus might have much to do in causing disease of the mucous membrane, if they did not cause actual pseudo-membranous inflammation. We should not ignore individual predisposition. Any efficient prevention must take cognizance of the multiple predisposing factors prevailing in crowded towns. Germicidal disinfection and quarantine were necessary, but would not suffice alone. Hygienic surroundings would enable one to better struggle against the disease when it developed, and in warding it off under exposure.

Dr. A. Jacobi fully agreed with what had been said. There was little left to be said. But things must be repeated. Every one present had probably said things ten times, but they had been forgotten. He then read extracts from articles which he had written many years ago, bearing on prevention, in the form of disinfection, isolation, school inspection, retreats for the well in a family where one or more were sick, etc., and said that while these things had been stated in our own country more than once, it seemed necessary to quote some foreign writer in order to impress their importance, as had been done to-night. The Willard Parker Hospital had proved a great blessing to those having contagious diseases, but it would be a still greater blessing if there were a temporary retreat for the healthy who might be exposed if kept at home where a member of the family lay afflicted. The well of such a family

ought not to go to school, to church, or to public assemblies. Teachers ought to be taught how to examine the throat in epidemics, and send those home who were suspected. Public vehicles ought to be cleansed and disinfected during epidemics at least. He approved of a physician visiting the public schools. While the papers made a great sensation on the appearance of a case of typhus fever, and rightly too, they paid little heed to the great prevalence of diphtheria, which also was a contagious disease, and claimed many more victims annually. He hoped the press would take hold of the question of diphtheria as it had done that of small-pox, cholera, etc., and felt sure that its labors would be crowned with greater success than was imagined.

Dr. H. D. Chapin laid much stress on the condition of many of the public school-buildings in the spread of diphtheria. They were dark, ill ventilated, and many of them contained no clothes-press at all, so that the children had to throw their wet over-clothes on the desk or chair. The clothes-press in some had no means of ventilation, so that germs of disease must spread from the clothes of one to those of others. The fault lay in divided authority between the Boards of Trustees, Education, and Apportionment, and, it would seem, could be remedied only by the enactment of a law giving the Board of Health power to close a school-building when its sanitary arrangements were not as they should be.

Dr. L. Emmett Holt told what had been accomplished in a practical way in preventing the spread of diphtheria in two city institutions which he was connected with. By quarantining in one building all cases with a suspicious exudate on the throat, and in another building those known to have diphtheria, they had been able to prevent the spread of the disease to more than two cases at any one time. The infected clothing was steamed by the dry-steam process, the walls and floors cleansed by bichloride solution. Notwithstanding during the last three or four years sporadic cases had developed about once in four months, an epidemic had thus been prevented.

Dr. Carr directed his remarks chiefly to prevention by hygiene, giving instances where children sent by charity organizations to one place, sunny, dry, and by the sea, grew strong during their short stay, and able to resist diphtheria; others sent to a damp, shady, though attractive place, returned showing less improvement in general health, and submitted more readily to diphtheria.

Dr. Bruce gave his experience as a former member of a local school-board, and said that janitors received a poor

salary, were unable therefore to sweep the school-buildings, dust remained on the floors, benches, walls; hot pipes passed through the clothes-presses, converting them into germ-incubators.

Dr. Seibert raised a question of priority. Also said school-children ought not to kiss one another; that teachers wrongly punished them when they remained home even for sore throat.

Dr. Cohen gave his experience as examining physician to a school of the Society of Ethical Culture, and said the responsibility was placed on him regarding the health of the scholars, spread of disease, condition of the school, and he could speak for the absence of diphtheria among those under his charge.

Dr. Berg thought the Board of Health did not notify the public schools as soon as they should when informed of the existence of an infectious disease in a school-child. Two to four days sometimes elapsed.

Dr. Smith closed the discussion, and expressed regret that members of the Board of Health and of the Board of Education had not been able to be present. If something practical were not done, this question would again die out, and he moved that a committee of three be appointed, consisting of the chairman, secretary, and another, to confer with the Board of Education and Board of Health and formulate practical methods for the limitation and spread of diphtheria, especially in public schools.

The committee consisted of Drs. August Caillé, Walter L. Carr, and H. D. Chapin.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, May 14, 1891.

AUGUST CAILLÉ, M.D., *Chairman*; WALTER LESTER CARR, M.D., *Secretary*.

TACHYCARDIA IN YOUNG GIRLS.

DR. HENRY KOPLIK presented two girls, who, he said, were suffering from symptoms of incipient Basedow's disease, including tachycardia. They were not typical examples of paroxysmal tachycardia, as first described by Nothnagel and afterwards by Fränkel. This form of the disease must be

very rare ; he had seen no example of it. He had, however, seen a case in Nothnagel's clinic resembling closely those presented, and which he called incipient Basedow's disease. Of this type of Basedow's disease several cases had been cured, or at least had remained well for months or years.

His first patient, aged eleven years, was of Hungarian parentage. Gave no hereditary history. Three weeks before he saw her, which was the middle of April, she complained of vertigo, dizziness, nausea, symptoms of dyspepsia, and attacks of palpitation, which came on three or four times a day, causing her to lie down. The palpitation was accompanied by a certain amount of dyspnoea and headache, and præcordial uneasiness. She was also very excitable, though not naturally so. The eyes stared, not winking as they did in normal children. The pulse had remained at 108 or above. There was tremor of the hands when the arms were extended. No exophthalmus. The sphygmograph showed irregular tension, and higher tension at one wrist than at the other. The patient had improved somewhat on strophanthus. A French author had described increased electrical conductivity of the body in these patients, but the speaker had recognized no difference in this respect between his patient and himself.

The other patient began to be affected in 1890, when eight years old. Her father had a cough, and was in delicate health. The mother was healthy. This girl had had measles and scarlet fever, the former one had not. As long ago as four years her mother had noticed attacks of palpitation in the patient when at play. A year ago she had headaches, mostly frontal. The attacks of palpitation began to come on independent of play ; a little shortness of breath ; patient would get up in sleep with a look of astonishment. Like in the other case, there was no sign of organic heart lesion. The pulse before treatment was 128, now 100 ; and during one attack, witnessed by Dr. Koplik, it mounted to 150. The hands with the arms outstretched showed tremor. Her eyes showed the stare. The treatment was by tonics and strophanthus. There had been marked improvement.

Dr. Putnam Jacobi thought the change in the respiratory act, which had been observed in Basedow's disease, and the expression of the face pointed to the medulla oblongata as the seat of the trouble.

Dr. Agramonte thought he could recognize in the first patient greater loudness of the pulmonary murmur than of the aorta, which was the reverse of the normal condition, and he thought that this fact and the difference in the pulse in the two wrists pointed to some trouble in the vessels.

ASTHENOPIA IN CHILDREN.

Dr. Joseph A. Andrews read the paper by request of the chairman. The author said his contribution laid no claim to novelty. It would have been difficult to choose a more important subject in ophthalmology for presentation to this section than eye-strain, which depended as a rule on errors of refraction. The symptoms of asthenopia were irritation of the mucous membrane of the lids, photophobia, pain in the eyes and head, perhaps sense of pressure about the eyes; if near work were persisted in the letters might be seen double.

The author gave here an interesting history of the cause of asthenopia, as it had been viewed at different times up to the discovery of Donders, who pointed out its relation to errors of refraction. Regarding asthenopia of muscular origin, he said there was at present a difference of opinion among authorities. Donders showed that the usual form of asthenopia was due to an organic condition of the eyeball, which caused hypermetropia. But he did not attach the same degree of importance to the correction of astigmatism that oculists did to-day. Here the reader quoted numerous observations going to show the great preponderance of hypermetropia in children. A question yet under dispute was whether, as youth passed, the hypermetropic eye became emmetropic, or even myopic, as was claimed by some.

When looking at near objects a certain demand was made on accommodation, and on the extrinsic as well as on the intrinsic muscles of the eyes. Those with near sight would require less effort than the emmetropic, the hypermetropic making the greatest effort. It was important, therefore, to meet the requirements of all cases of eye-strain, both by suitable glasses and by building up the general health. The author quoted Seguin in evidence of the effect of eye-strain in the production of nervous symptoms, especially headache and migraine. His own experience confirmed that of his colleagues, that the majority of school-children who applied to them for the treatment of headache were relieved by correction of existing ametropia. The attending muscular phenomena had, in his experience, very rarely required correction after the use of prisms. Still, he thought it was best to test for inefficiency of the ocular muscles. As to the muscles most likely to be affected, some said the internal recti, others the external recti. He had found the vertical diplopia test the most satisfactory. The tests should be repeated.

He had found correction of even one-quarter dioptré relieve

many of his patients, although one author had expressed the opinion that it could only act as a placebo.

Dr. Richard H. Derby said that disturbed binocular vision certainly could and did result in headache. By use of prisms, etc., in children, he had seen headache, blepharo-adenitis, blepharospasm, and other symptoms rapidly disappear.

NASO-PHARYNGEAL CATARRH A CAUSATIVE FACTOR IN GASTRIC CATARRH.

Dr. Louis Fischer read a paper with this title. He claimed that there was very frequently coexisting naso-pharyngeal catarrh and gastric catarrh in adults and children, and that with the correction of the former the latter often disappeared, showing a causative relation. The pharyngeal secretions during catarrh were capable of setting up irritation when brought in contact with the skin, and he thought by analogy might act to some extent upon the mucous membrane of the stomach. The greater frequency of gastric catarrh resulting from swallowing the secretions in naso-pharyngeal catarrh in children than in adults was due to the fact that children before the second year rarely expectorated. Perhaps these secretions, which were alkaline, acted by neutralizing the gastric juice. His attention had been called to this relationship by observing the disappearance of gastric trouble with cure of naso-pharyngeal catarrh in himself. He had then repeated his observations in a number of cases at the German polyclinic.

Dr. A. Jacobi, being requested to make some remarks, said he had nothing further to add than to express the views quoted from his writings by the author, to the effect that mucous membranes were continuous, and when inflamed the inflammation tended to spread over a wide surface. He was disposed to think that the frequent coexistence of pharyngeal catarrh and gastric catarrh was due to the fact that we had to do with one continuous mucous membrane. But since his attention had been called to the possible causative relation of naso-pharyngeal catarrh to gastric catarrh, he would make observations in that direction. But he was inclined to think that since the mucous membrane of the stomach was capable of resisting so many things swallowed by children, it would not be likely to be so easily affected by some mucus.

Dr. W. P. Northrup had sometimes wondered at the amount of muco-purulent matter which children could swallow when suffering, say, with diphtheria, and yet not have disease of the stomach. And as to continuity of mucous membranes, mentioned by Dr. Jacobi, he said that out of over a hundred

autopsies in diphtheritic cases he had found diphtheria of the stomach only once. There seemed, then, to be quite a break between the mucous membrane of the pharynx and that of the stomach.

ON THE RELATION OF DENTITION TO VARIOUS PATHOLOGICAL CONDITIONS.

Dr. A. Brothers read the paper. Only a few years ago it was quite common to attribute disease to dentition, but more recently, with the demands of the age for precision, this relation had come to be denied or almost entirely overlooked. The author had tried to study the subject from an unbiased stand-point, had kept very carefully-made records of about five hundred teething infants in private and dispensary practice. His conclusions were, (1) that dentition is rarely, if ever, the direct cause of disease; (2) precocious or retarded dentition may occur in otherwise healthy children of an entire family; (3) the period of protrusion of the first teeth occurs in healthy, breast-fed children at six months and a half in a vast majority of the cases; (4) the first dentition is usually complete from the thirtieth to the thirty-sixth month; (5) dentition is distinctly retarded in the first as well as in the later teeth of children brought up on mixed or artificial diet; (6) congenital diseases, as syphilis, seem to have a retarding influence on dentition; rickets has a very pronounced retarding influence on the whole course of dentition; (7) scrofula seems to hasten the eruption of the first teeth, but does not affect the later teeth; (8) in cases of undeveloped brain there is marked retardation during the entire period of dentition; (9) chronic diseases have a retarding effect over the first teeth, but do not seem to influence the later teeth; (10) children suffering from marasmus seem to be precocious with the first teeth, tardy with the later teeth; (11) cases of epilepsy developing in infancy seem to have their first teeth appear early.

The author had seen only one case of inherited teeth, and, replying to a question by Dr. Stowell, said they seemed firm.

Dr. Stowell had seen a case of congenital teeth, but they were not firm.

Dr. J. Lewis Smith remarked that the tendency nowadays was to overlook dentition as a possible cause of disease. He had seen two cases of tonic contraction of certain muscles, in one of the left leg, which continued until some teeth which were about to come through fully made their appearance, there being no other apparent cause.

Dr. Berg said that ten years ago, when he was graduated,

he had obtained the impression that dentition had very little to do with disease, but that now he had come to regard it as a very serious factor. He confined his remarks to the importance of dentition in the production of convulsions and epilepsy. The period of childhood was accompanied by extreme exaltation of the reflexes. That is to say, one centre of the nervous system is influenced by activity in another centre by reflex paths. He thought the slightest experience in the treatment of diseases of children would impress upon one the connection between nervous diseases and dentition.

Dr. A. Jacobi thought the paper was a concise and valuable presentation of the influence of dentition on disease. It contained a few mistakes, though not weighty ones. For instance, he thought it was a mistake to suggest that dentition might be retarded even in healthy children. He thought there was likely to be some condition short of health in such children, a want of proper nourishment of the body in some form. Understanding Dr. Berg to have said that epilepsy might be caused by teething, the first convulsive attack brought on by dentition being repeated by habit, he said that epilepsy was not a habit, and that he had never known a case to be caused by dentition. A more serious cause was to be sought for.

Dr. Rachel thought we could judge of the influence of the first dentition by what we knew of it in the second. When the molars came through we knew that the symptoms were swelling and pain. That, he thought, was the condition present in infants during the first dentition, and when other exciting factors existed it might help towards bringing on a convulsion, etc.

Dr. Rachel's paper on polyuria in children was read by title.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Clouston: *The Neuroses of Development.* (*Edinburgh Medical Journal*, March, April, May, 1891.)

Traumatism is assigned by most authors as a cause for idiocy and congenital imbecility. Parents are prone to look for some accident as the cause for such conditions, resolutely shutting their eyes to manifest hereditary weakness. While the author makes allowance for such sources of error, he believes that there are left certain cases where traumatism must

be assigned as the exciting cause of the arrest of brain-development. This is intelligible enough when there is a gross lesion of the brain, as a clot causing pressure. It is not as clear, but still must be accepted as a fact, that sometimes a fall or a blow is followed by a change in the development of certain brain functions. Traumatic idiocy is in such cases not as marked either in mental impairment or in physical expression.

Rickets, night-terrors, the febrile delirium of children at temperatures ranging from 99° to 101° , infantile eclampsia, and the hysterical affections of childhood are all classed by the author as neuroses incidental to childhood from birth to seven years. They all occur in children of neurotic heredity far more frequently than in other children. They are referable to weakness of inhibitory function and instability in the brain cortex at an era when the organ is rapidly growing and the convolutions are deepening and expanding in even greater proportion than the rest of the brain. Rickets is clearly a trophic neurosis probably due to want of sunlight sufficient to give stimulus to the central trophic nervous centres which innervate the bones and perhaps other tissues. But these exciting causes of want of light and bad city conditions of life will not, as a rule, produce rickets in the children of healthy, country-born parents. That the brain cortex is affected is evident from their common neurotic accompaniments, retardation of growth, and a tendency to precocious and unhealthy mental advancement which stops short of full mental growth.

The author agrees with Jenner and Henoch in attributing the so-called convulsions of teething far more to rickets than to dentition. The first motor sign of the instability of any brain is a tendency to convulsions during the first dentition. Many cases of developmental epilepsy will be found to have had convulsions during dentition. The same kind of unstable brain will become delirious at night even with very low febrile temperatures. Such children will take convulsions at slight attacks of indigestion.

Night-terrors, the author believes, is an affection that is really psychical, and may be considered equivalent to a convulsion occurring in the mental areas during sleep.

Shattock: Thickening of the Skull in Rickets. (*The Lancet*, April 11, 1891.)

At a meeting of the Pathological Society of London the author showed two skulls from infants greatly thickened by the formation of very porous new bone on the outer aspect. In one there were signs of syphilis, but no signs of that dis-

ease in the other. Sections showed complete absence of earthy salts. The appearance was like that of osteomalacia. The author contended that the thickening of the skull, of flat bones generally, and of the shafts of the long bones are inflammatory, as in osteitis deformans. The rarefaction of the original substance of the bone in rickets would point to the same conclusion. There were many instances in pathology, apart from microbic origin, in which inflammation was due to morbid alterations of the blood, such as rickets was generally considered to be. The characteristic mark of inflammatory productions in rickets was the want of proper calcification of the new osseous tissue.

The second specimen was from an infant with congenital syphilis. That syphilis without rickets might produce widely-extended osteoplastic periostitis had been long known, but the formations were of normal firmness.

The syphilitic disease may, to a certain extent, determine the seat of the disease, but the rachitic, the imperfect calcification of the new bone, and the combined conditions may be termed "syphilorachitis."

In the discussion following, Mr. Bowlby dissented from the idea of rickets being regarded as an inflammatory disease, and considered that the similarity of resulting histological appearances was sufficient to prove their identity. Mr. Shattock, in reply, said that the term hypertrophy was altogether out of place, and the thickening present was structurally quite different from ordinary bone.

Nason: Megrim accompanied by Paralysis of the Third Nerve. (*The Lancet*, February 28, 1891.)

This case is of interest, especially because of the paralysis becoming permanent.

The patient, a boy of twelve and a half years, had suffered for five years from recurrent attacks, characterized by a prodromal stage of languor and weakness, lasting one to three days, with slight pain in the left frontal region towards the end of this time. Then there suddenly supervenes intense nausea, vomiting, pallor, feeble pulse, and great prostration. The pain rapidly increases and soon becomes agonizing.

The pain is referred to the course of the left supraorbital nerve, but is felt over the occipital protuberance. There is at the same time increased lachrymation and a discharge of watery mucus from the left nostril, great intolerance of light, prominence of left eyeball, and increase of intra-ocular tension, wrinkling of left side of forehead, with fibrillar twitchings of the frontalis.

Gradual increasing paralysis of the third nerve then follows. The pupil remains midway between contraction and dilatation, and reacts, but slightly to light or accommodation, the reaction being anomalous. There is marked double vision over the whole field visible to both eyes. During the attack the child seems extremely ill. The symptoms subside suddenly. The paralysis, however, remains for a day or so, but gradually passes off.

Lately these attacks have increased in severity and in frequency; and have left more and more residual paralysis, till at the present time there is almost as much paralysis between the attacks as during one.

There is no optic neuritis or atrophy, but vision, especially in the left eye, is much impaired.

There is no family history of epilepsy, megrim, or other kindred neurosis, or of syphilis in either parent.

The boy had scarlet fever when four years old, but this was not followed by any discharge from the ears. Since then he has suffered frequently from "cold in the head," "sick headache," also from occasional nocturnal incontinence of urine. Since his seventh year the attacks have occurred at intervals of three to four weeks. If he goes beyond four weeks, the next attack is proportionately severe.

The case is probably a variety of megrim, and certainly should be classed among the paroxysmal neuroses. If the "storms" are regarded as of vaso-motor origin, and consisting of spasms of the arterioles supplying the third and fifth nerve nuclei, an explanation of the permanence of the paralysis suggests itself. If the nucleus of the third nerve were repeatedly deprived for some length of time of its proper nutritive supply, what was at first a mere functional derangement might ultimately become an organic change, and partial atrophy of the nervous elements might result, having for its visible effects permanent paralysis of the muscles supplied from that centre.

II.—MEDICINE.

Muller: Tuberculosis in Children. (*Jahrb.f. Kinderh.*, xxxii. 1, 2.)

The author's observations are based upon five hundred autopsies at the pathological institute at Munich, between the years 1881 and 1889. Of this number there were one hundred and fifty cases of tuberculosis, 41.3 per cent. of which occurred between the second and fourth years of life. This is also the period in which measles mostly prevails. As to mor-

talily, fifty per cent. of all fatal cases of tuberculosis occur before the fifth year of life. There are probably more deaths from tuberculosis in children than in adults. More males suffer with tuberculosis among adults than females, while in children the reverse is true, with the exception of the years from four to six and from eleven to fifteen.

In 92.67 per cent. of cases the lungs were diseased; in 84 per cent., the lymph glands; in 65.33, the pleura; in 43.33, the spleen; in 38, the intestine; in 33.33, the liver; in 26.66, the pia mater; in 23.33, the kidneys; in 22, the bones and joints; in 18, the peritoneum; in 8, the brain; in 4.66 the heart; in 3.33, the stomach; in 2.66, the larynx; in 2, the tonsils; in 2, the pericardium; in 1.33, the spinal cord; in 1.33, suprarenal capsules; in .66, the oesophagus, parotid, submaxillary, thymus, or female genitals. Of one hundred and thirty-nine bodies in which the lungs were tuberculous there were sixty-eight in which there was only cheesy pneumonia. The greatest number of tuberculous lung-diseases were in the fourth year of life; the greatest number of cases of cheesy pneumonia were in the second year. The relation of cheesy pneumonia with measles must not be disregarded. Those parts of the lungs near the hilum were mostly involved in tuberculosis. As the lymph-glands are frequently involved, the probability that neighboring organs will be infected is apparent. In 81.74 per cent. of cases the bronchial glands were tuberculous; in 57.14, the mesenteric; in 11.11, the mediastinal; in 8.75, the cervical; in 7.14, the retro-peritoneal; in 4.76, the portal; in 3.17, the epigastric; in 2.38, the retro-maxillary and inguinal. The intestine is seldom the avenue for tuberculous infection in children; if it becomes involved the lungs are usually involved also. The lungs are so often involved in childhood because infectious material can pass the alveolar wall without hinderance, and reach the bronchial glands. The bacillus tuberculosis causes general infection less frequently through the lymphatic than through the blood channels. The lymph-glands being often the primary seat of tuberculosis in children the disease may remain latent if the lymph-channels are obstructed, but the danger of general infection is always present. The rapidity with which tissue changes take place in children would also seem to offer opposition to the general spreading of the disease.

A. F. C.

Torensen: Scarlatinal Diphtheritis. (*Jahrb. f. Kinderh.*, xxxii. 1, 2.)

There are manifest differences, from a clinical stand-point, between scarlatinal and ordinary diphtheria. In the former

the morbid deposit is of a yellow color, of the consistency of thick soup; there is a characteristic tendency to suppuration which frequently leads to perforation of the anterior palatal arch, the glandular swellings often result in phlegmon and extensive destruction of the skin, the process extends not only along the surface but into the deep tissues, the ear is often involved, likewise the larynx, and the febrile movement shows a close relation with the local process. The exudation is located within the tissue rather than upon its surface; the tissue of the tonsils is necrotic superficially, and in the tissues there are quantities of micrococci, not alone in the necrotic portions of tissue, but in the deeper layers, and in places in which only slight changes, to all appearances, have occurred. These cocci are also found in organs which have been brought into sympathy with the morbid process, especially in the spleen. Scarlatinal diphtheria, therefore, has not only a clinical but also an anatomical and microscopical character of a lesion which involves the entire organism. In very acute cases or in those in which the disease seems to concentrate itself upon a single organ the micro-organisms are found only in those parts which are primarily attacked, while in those cases which run a less rapid course they are found in distant organs, especially in those cases which show a decidedly septic character. The constant presence of these cocci indicates a decided relationship between them and scarlatinal diphtheria. They resemble the streptococcus pyogenes of Rosenbach, and the coccus of erysipelas, but are somewhat larger than the latter. In none of the cases of this disease investigated by the author has he found a bacillus resembling the bacillus of Löffler. That scarlatinal diphtheria has no relation with true diphtheria is also shown in the fact that scarlatinal patients and convalescents are not susceptible to infection from diphtheria. The author does not believe that scarlatinal diphtheria means ordinary diphtheria complicated by scarlet fever, neither does he admit that scarlatinal diphtheria is scarlet fever complicated by a purulent infection, because the diphtheritic and suppurative processes in the former disease are so closely united both clinically and anatomically that they cannot be separated, and because the micrococci are found in great numbers in the tissue affected by the diphtheritic process and in the collections of pus. Scarlatinal diphtheria is believed to be a distinct scarlatinal process not only because it is of common occurrence with scarlatina, but because it often occurs at the same time and occasionally as the only symptom of the disease. There is often an intimate relationship between the intensity and extent of the diphtheritic process and the

severity of the scarlet fever. Then the question arises whether scarlatinal diphtheria is to be considered the anatomical basis of scarlet fever or as the primary evidence of infection and invasion; as evidence in favor of such a hypothesis the author states that he has found in the genital tract in puerperal scarlet fever changes similar to the anatomical changes in the throat in ordinary scarlet fever. Rheumatism and nephritis are not only very common with scarlatinal diphtheria but usually are more severe than in ordinary diphtheria. The presence of the cutaneous eruption does not prevent us from regarding scarlatinal diphtheria as the anatomical basis of scarlet fever, for hyperæmic and exudative processes are also present in puerperal and other septicæmic and pyæmic conditions. If the foregoing statements be accepted as facts, then must one regard the cocci which are found in scarlatinal diphtheria as the specific virus of scarlet fever. A. F. C.

Somma: Infantile Splenic Anæmia. (This discourse was read by the author before the First Italian Pediatric Congress at Rome, October, 1890.)

The following are the author's conclusions:

1. Infantile splenic anæmia, or splenic pseudo-leukæmia is a common disease of childhood, more common than has usually been supposed. Its origin may date from the very beginning of life.

2. Its introduction into modern pathology is largely due to the investigations of Cardarelli and Luigi Somma.

3. It is characterized by the well-known form of progressive grave anæmia, associated with chronic hypertrophy of the spleen which, with its special characters, has no relation with other morbid conditions.

4. Clinically it is manifested by a complex train of pathognomonic and accidental phenomena. The first or necessary ones are unfailing in every nosographic form of the disease, the second may be present but are not always clearly distinguishable.

5. In its cycle of evolution three periods are usually to be observed, being periods of beginning, development, and cachexia.

6. There are three principal forms of the disease, the chronic febrile form, the chronic afebrile form, and the chronic form with recurring attacks of fever.

7. The true nature of the process is not yet clearly understood, but from such investigations as have been made it is supposed to be due to a micro-organism which is introduced into the system and finds its medium of development within

the spleen. Having passed into the circulation of this organ it determines the many anatomical and functional changes in the organ which mark the clinical phenomena of the disease.

8. It has a chronic cause which varies from eight months to three years, and there are also cases which continue when adult life has been reached.

9. The disease may terminate in three ways,—in death, which is the most frequent way; in a prolonged chronic state, which continues into adult life; and in complete cure.

10. The prognosis should be a most guarded one, and one should aim chiefly to modify the symptoms. The propriety of splenectomy is not yet decided upon. Such a grave operation is of course to be avoided if possible. A. F. C.

Leroux: Appendicular Colic in its Relations to Appendicitis. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

The beginning of appendicular colic is usually sudden, though it may be preceded by slight pain in the abdomen and a sensation of heat in the right flank. There may be a precedent history of constipation. It naturally occurs in dyspeptic children with intestinal atony, and in those who are hearty eaters. The pain may come after a full meal, or severe fatigue, and in a few minutes may be intense, radiating from the right flank towards the epigastrium, and soon involving the entire abdomen. Vomiting and moderate tympanites will follow the maximum of pain upon pressure being felt in the right iliac fossa. The face becomes pinched, the pulse small, and the extremities cold, as in hepatic colic. In eight or ten hours the pain becomes less intense, the vomiting ceases and in twelve to twenty-four hours the trouble will have disappeared. The following day the abdomen may be tender but there will be no apparent induration in the region of the cæcum, no intestinal engorgement or cæcal obstruction. Purgation will be followed by the normal condition. Such a history may be repeated several times before the phenomena of appendicitis are apparent,—that is, this form of colic may exist independently of appendicitis; it may precede an attack of this disease or it may mark the beginning of the disease. The cause of this condition is usually a foreign body, in most cases a scybalous mass in the lumen of the appendix. Should this mass pass into the cæcum, pain will at once be arrested; should it remain, appendicitis will be excited, with or without perforation. The symptoms are quite suggestive of hepatic colic, but when analyzed the latter condition can usually be excluded. The pains of appendicular colic usually radiate from the right flank to the epigastrium and thence to the left

flank. They are located lower in the abdomen than in hepatic colic, in the latter they are in the right hypochondriac region and in the epigastrium. In hepatic colic the pain radiates to the back or to the shoulder, and pressure yields the maximum of pain at the epigastrium or under the false ribs of the right side. In appendicular colic there is no icteric discoloration of the urine, and no icteric hue of the skin.

In nephritic colic, on the other hand, the pain radiates to the bladder, to the penis, and there is frequent desire to urinate, which will suffice for its differentiation from hepatic colic.

A. F. C.

Bevan: Coexistence of Scarlet Fever and Chicken-Pox. (*British Medical Journal*, March 28, 1891.)

Three children belonging to one family were ill with scarlet fever. On the fifteenth day of the disease, while desquamation was active, the eruption of chicken-pox developed in one case, and thirteen days after this in another. The scarlet fever was mild and the chicken-pox was severe, but it is doubtful if either disease was influenced by the other.

Shadwell: Scarlet Fever and Chicken-Pox. (*British Medical Journal*, April 4, 1891.)

The author states that there were four children in one family suffering from scarlet fever. Of these, one died. Another child who had not had the disease was exposed for forty-eight hours. She did not contract the disease, but four days later the eruption of chicken-pox appeared. The exposure to chicken-pox must have been at least ten days before that to scarlet fever.

Douglas: Measles and Chicken-Pox. (*British Medical Journal*, April 4, 1891.)

On February 2 a boy entered school where measles had developed. The eruption of chicken-pox developed on the 14th and that of measles on the 17th, the rash of both diseases being profuse. The exposure to measles took place on the 4th or 5th. Investigation seemed to show that the period of incubation of the chicken-pox had been prolonged through the influence on the system of the antecedent attack of measles.

Davies: A Rare Sequela of Scarlatina. (*British Medical Journal*, February 28, 1891.)

The patient was a boy nine years of age. At the end of the third week of an attack of scarlatina he awoke in the morning apparently in the best of health. At 9.30 A.M. he sud-

denly began to cry with violent pain in the legs, which were cold, puffy, and very tender to the touch. Dark spots soon appeared on the shins, both calves, and the dorsum of the left foot. At 1.30 P.M., when first seen by the author, the following conditions were noted: He was anæmic, desquamating freely, but feeling well. The temperature, bowels, and urine were normal, the pulse about 100. The legs from the knees downward were slightly œdematous, the surface was warm, and there were ecchymoses about both ankles. Both calves were covered by bluish-black subcutaneous hemorrhagic patches, surrounded by narrow zones of inflammation. They were very tender to the touch. On the following morning the temperature was normal, the extremities were warm, the urine scanty but normal. The ecchymoses were completely merged into patches of "raven-blue," surrounded by inflammatory zones. The symmetry of the patches was remarkable. The legs were slightly œdematous, but exceedingly painful, the child shrieking if they were moved or roughly handled. New centres of ecchymoses were appearing on the legs and one on the right hip. The appearance of the patches was always heralded by great pain. There was no enlargement of the joints.

At 1 P.M. the patches were stationary except those on the right hip and dorsum of the left foot, which were spreading rapidly. An ecchymosis had appeared on the point of the left elbow. The joint was not enlarged, but motion was painful. The mind was perfectly clear. At 7.30 P.M. the spots were still spreading. The patient was then removed to the hospital, but died on the following day at noon.

The autopsy was made forty-eight hours after death. There was some blood-stained fluid in each pleural cavity; the lungs were normal. The heart contained no clots; the walls were thin and flabby. The liver and kidneys were anæmic; the spleen normal. There were no extravasations of blood in any internal organ, and no abnormality except anæmia.

III.—SURGERY.

Barker, A. E.: *The Treatment of Large Tuberculous Abscesses.* (*British Medical Journal*, February 7, 1891.)

The older methods of treatment of tuberculous abscesses left much to be desired. The great difficulty is the complete evacuation of the curdy and semisolid matter which they usually contain. The importance of this, however, becomes more and more manifest as our knowledge increases. That

all the cheesy and curdy material should be removed, as well as the so-called pyæmic membrane, is of the utmost importance. So long as that remains we have left the most active part of the tuberculous material. The fresh-cut surfaces of the healthy tissues should also be guarded from infection. Without this precaution the scar will sometimes break down after primary union has taken place.

After a large experience in the treatment of such abscesses the author has adopted the plan of flushing the abscess cavity with hot water, at the same time scraping away and breaking up the cheesy material. A free incision is made in the most dependent part of the abscess. Through this a hollow gouge is inserted which is connected by a rubber tube with a reservoir of hot water at 105° to 110° F. The reservoir is raised five feet above the table and the water allowed to flow. By gently scraping with a long-handled scoop the more solid matter is dislodged and the hot water carries it from the cavity at once.

The walls of the cavity are then methodically scraped, and the cavity is again flushed. Some iodoform emulsion is introduced and the incision is closed without a drainage-tube.

The peculiarity in this treatment is the use of hot water by the gallon under pressure. What is aimed at is simple mechanical evacuation of the abscess with as little violence as possible. No antiseptic could be safely employed in the quantity of fluid required, and it is unnecessary, for the water is rendered sterile by boiling.

Chaffey: Tapping the Ventricles in Hydrocephalus. (*British Medical Journal*, January 31, 1891.)

The patient, aged fourteen months, presented the usual symptoms of hydrocephalus. The course of the disease was rapid, and the child settled into a comatose condition. A trocar and canula was passed to the depth of an inch and a half through the left lateral angle of the anterior fontanelle. Two drachms of fluid were allowed to escape. The stop-cock of the canula was then closed, and a rubber tube attached, the other end being placed in a saline solution. A drachm of fluid was then allowed to escape every three hours, the canula being maintained *in situ*. Though the coma decreased, the child died of exhaustion after three days.

Post-mortem examination showed that the trocar had entered the ventricle through the roof of the anterior horn. There were no secondary changes along the track of the instrument. The capacity of the ventricles was six ounces. A caseous deposit was found at the summit of the transverse

fissure, which pressed upon and constricted the iter, while recent tubercle and lymph existed in both Sylvian fissures. Recent tubercle was found in other organs, but its presence had given rise to no signs during life.

Jacques: Intubation of the Larynx in Croup. (*Rev. Mens. des Mal. de l'Enf.*, January, 1891.)

This operation, devised by Bouchut in 1858, was revived by O'Dwyer, of New York, in 1881. It offers the following advantages:

1. It relieves intense dyspnoea as efficiently as tracheotomy does.

2. Parents and friends do not object to it, as they frequently do to tracheotomy.

3. The operation is relatively easy and simple, and involves neither danger nor shock.

4. Anæsthesia is not necessary for its performance, and one does not require skilled assistants.

5. No wound is added to the sufferings of the patient, nor any new source for general infection.

6. The laryngeal tube offers less irritation than the tracheal canula, because the tube is smaller than the trachea and presses only upon the entrance of the glottis.

7. Expectoration is easier with the tube than with the tracheal canula.

8. Since the tube terminates in the larynx the air of respiration reaches the lungs in a warm and moist condition after its passage through the natural channels. Thus the danger of pneumonia is lessened.

9. The operation is not a bloody one, and it is to be remembered that even the loss of a small quantity of blood is bad for a child.

10. It may be done rapidly, and has fewer dangers than tracheotomy.

11. Convalescence is more prompt than after tracheotomy, for there has been no solution of continuity of the tissues, and there are no granulations to disappear only after a long period. Neither is there any atresia of the larynx, such as may follow the use of the tracheal canula.

12. The patient does not require the assiduous and constant care of the physician, as is the case after tracheotomy.

13. The operation may be followed by tracheotomy, should the latter be indicated, and the tube will furnish a useful guide in case such an operation should be required.

14. No scar will be left, which is often an important consideration in the case of females.

15. It is of benefit in benign cases, in which interference for only a short period is required.

16. The tubes serve as good dilating media in cases in which the canula cannot be used after tracheotomy, and also in cases in which there is chronic stenosis of the larynx and trachea.

The author has performed the operation sixty-eight times, in twenty-one of which the patients recovered. A. F. C.

Carr, J. W.: Ulceration of the Trachea produced by an Intubation-Tube. (*The Lancet*, March 28, 1891.)

The patient was a well-developed child, aged two years and eight months. Diphtheritic membrane was seen in the throat at the time of admission, but not until ten days later did laryngeal symptoms (aphonia and stridulous cough and cry) appear. On account of increasing dyspnoea, stridor, and recession of chest-wall the child was intubated the next day, with a tube for a child of two years, according to O'Dwyer's scales. This gave complete relief.

It was coughed up two hours later, and, the dyspnoea returning, a tube for a child three to four years old was inserted with some difficulty, being noticed to fit tightly in the larynx. The tube was now retained four days, when it was again coughed out, but had to be replaced to relieve dyspnoea. It was then kept in until death, six days in all.

At the necropsy extensive broncho-pneumonic changes were found in both lungs. There was no membrane in the larynx or trachea, but the entire mucous membrane presented a dirty, grayish-white appearance, and in the larynx could be very readily peeled off from the cartilages.

In the centre and exactly on the top of the left aryteno-epiglottic fold was a narrow ulcer about one-third of an inch long. At the upper end of the trachea, in the middle line in front, was a small circular ulcer, about a quarter of an inch in diameter, exposing the first ring. About half-way down the front of the trachea, also in the middle line, was a larger ulcer, fully half an inch long by one-third broad, which had actually ulcerated through three of the cartilaginous rings, the ragged ends of which projected freely on each side into the lumen of the tube. The base of this ulcer was covered with an adherent slough. The other organs were healthy. The case is of interest in the commencement of the laryngeal symptoms, probably fourteen days after the onset of the disease.

The small ulcer on the left aryteno-epiglottic fold was probably due to the string attached. Similar cases have been described.

The author concludes that it is better not to leave it attached when the tube is worn more than a day or two.

The chief interest of the case lies in the trachial ulceration. The ulceration probably had nothing to do with the fatal issue, but had the child recovered it might have proved a troublesome complication later on.

The practical points to determine are,—assuming that there is no defect in the shape of the tubes at present in use,—How far was the ulceration due to the time the tube was retained and how far to its size?

In regard to the first point the author refers to several reports of cases, both in America and England, where the tube was worn longer than in the present case without trouble.

In regard to a larger tube than the O'Dwyer scale requires, the author believes that a practical lesson from the case seems to be that it is important, even at the risk of the tube being coughed up frequently, not to use too large a tube, especially if it is likely to be wanted for more than a few hours.

Bowlby: Symmetrical Periostitis, with Epiphyseal Separation in an Infant. (*The Lancet*, March 21, 1891.)

At a meeting of the London Pathological Society, Mr. Bowlby showed specimens of symmetrical periostitis with peculiar formation of new bone. The patient was a male infant and had been ill one week before admission.

There was slight pyrexia and the legs were swollen from œdema. The lower part of each thigh was greatly swollen, especially the right. On this side there were fluctuations, on the other none, and an incision liberated pus from the former. The child suffered from bronchitis, and died eighteen days after admission. The necropsy showed a complete ring of new bone on the right side separated by a large interval from the shaft of the femur, to which, on transverse section, it bore the same relation that the tire of a wheel does to the axle. On the left side was a similar but smaller formation. The complete ring of bone was evidently due to a separation of the periosteum in an intact state from the shaft of the femur, and was of great thickness. It was apparently formed with great rapidity, as the whole duration of illness did not exceed four or five weeks. There was no evidence of any constitutional disorder. The pus was not examined for micro-organisms. There was absence of any sign of scurvy rickets. The author thought that the periosteum had been raised by a passive serous effusion, and for that reason the bone did not die, as it was not inflamed.

Bibliography.

A TREATISE ON THE DISEASES OF INFANCY AND CHILDHOOD. By J. Lewis Smith, M.D. Seventh Edition, thoroughly revised. Lea Brothers & Co., Philadelphia, 1890.

This work, which we have long regarded as one of our classics in pediatric literature, has been again carefully and thoroughly revised. The author is so well known from his many contributions to the literature of his specialty, and this treatise has been so long before and so favorably received by the English-speaking profession on both sides of the Atlantic, that a new edition appears to call for but a brief notice from the pen of the reviewer. Yet successive editions of a work like this are like the mile-stones on a journey, enabling us to mark progress. Regarding it in this light, it is a pleasure to note the great strides which the department of medicine has made in recent years. So great has been the advance that, as the author states, the necessary revision has produced virtually a new book. On careful examination, we find few chapters to which many new facts have not been added, while much obsolete material has been carefully secluded. To some of these changes we would briefly call attention.

Part I. is devoted chiefly to the Hygiene of Infancy. The author goes very carefully into all the necessary detail of this most important subject. These chapters are of great value to the young physician, owing to the impractical character of most of the instruction given on this subject in our colleges. No one of our other text-books is as careful in detail. Frequent reference is made to Dr. Rotch's recent investigations. We should ourselves have felt more inclined to emphasize the latter's suggestion, that when the milk of a nursing mother disagrees with the infant, it should be analyzed by a careful and competent chemist, to discover, if possible, where the exact difficulty may lie. We believe, with Dr. Rotch, that many cases of painful digestion on the part of the infant are due to excess of albuminoids in the mother's milk, and may be frequently relieved by insisting on out-door exercise for the mother, together with proper rest and sleep. No one can speak with more authority than Dr. Smith on the subject of artificial feeding. A protest is justly made against the rule that an infant's weight should be made the sole test of the amount of food to be given. We are ourselves convinced of the value of his preparation of barley flour. Feeling the importance of the method, we should have been glad to notice in this chapter a fuller description of the process of sterilizing milk and more emphasis given to its universal value.

Part II. treats of Diseases of the New-Born. Several interesting chapters have been added here, among which we may mention those on the

Mammary Glands in Infancy, on Sepsis, Hæmatemesis and Melæna, Diarrhœa and Constipation, and Icterus.

Part III. deals with the Constitutional Diseases. In the article on Rachitis, we notice little additional matter to what has already appeared. In that on Scrofula the author quotes Dr. Jacobi's statement that the tubercle bacilli in a scrofulous disease is an accidental invasion, and regards it as improbable that the phenomena of scrofula are due to the action of a microbe peculiar to the disease. In the article on Tuberculosis Dr. Smith calls particular attention to the fact, which has more recently been emphasized by Dr. Northrup, that the glandular system, and especially the bronchial glands, are the gate of entrance for the bacilli in the great majority of cases. Dr. Smith says, "It is evident in such cases that the glandular hyperplasia and degeneration, bronchial or mesenteric, or both, preceded the tubercular disease, and furnished the conditions favorable for the lodgement and propagation of the tubercle bacillus. In most of the patients the mesenteric glands were smaller and less cheesy than the bronchial; but in a few instances they were larger than the bronchial and more cheesy." Speaking of the physical signs produced by the presence of the enlarged bronchial glands, he says, occasionally a *bruit* can be detected, due to the pressure of a gland on one of the larger vessels of the chest. We have occasionally confirmed the value of Dr. Goodhart's directions, to bend the child's head backward till the face looked directly upward. The pressure of an enlarged gland on the vessels will in this position cause a *bruit*, which will disappear on the normal position being regained. The treatment of tuberculosis has been brought well up to date. Special caution is given against using the milk of tuberculous cows, and Dr. Welsh's statistics on the matter are given. The section on Eruptive Fevers is, as might have been expected, practical and exhaustive, and occupies nearly one-fourth of the whole volume. The article on Scarlet Fever very justly claims a large amount of the space. Its clinical history, varieties and complications, are very carefully given. And the therapeutics are especially full. We regret that mention has not been made, either in this article or in the one on Diphtheria, of the use of peroxide of hydrogen, which, in our experience, has proved by far the most valuable of local applications in the pharyngitis of both these fevers.

In the section on the Diseases of the Respiratory System the article on Pneumonia has been almost entirely rearranged and rewritten in accordance with our later ideas. In the very exhaustive article on Pleurisy Dr. Smith takes strong grounds against the exsection of a portion of the rib. He says, "I have not yet met a case, in private or hospital practice, where I could conscientiously recommend the operation. The gum-elastic catheter, introduced as recommended, will pass through any intercostal space, allowing free evacuation of the pus by suction, and free washing out of the pleural cavity, if desired. In order that exsection aid materially in the approximation of the lung and ribs, it is necessary to remove portions of two or more ribs. What is needed is not depression of the ribs, which may produce permanent deformity, but expansion of

the lungs, and this is promoted by the integrity and resilience of the ribs." Notwithstanding the great value to be placed on Dr. Smith's experience, many surgeons are convinced that, when the empyema is of old standing, or striking in character, thorough and free drainage can be best obtained by this operation. And by it the duration of the case is very materially shortened. The resulting deformity, in our experience, has been scarcely noticeable. Dr. O'Dwyer writes the article on Intubation.

The section on Diseases of the Nervous System has been enlarged by the addition of two chapters, one on Epilepsy, the other on Tetany. In the article on Chorea we should have been glad to notice more reference made to the condition of the heart. We think there is scarcely sufficient importance given to the value of absolute rest in its treatment. We believe that in most instances absolute rest, for a longer or shorter period, greatly expedites recovery. In the short article on Vertebral Caries reference is made to the value of pain in the chest, epigastrium, or umbilical region, as an early symptom. In speaking of the diagnosis, however, he says this is often obscure and uncertain for a time until the appearance of spinal deformity, by which alone the diagnosis is clearly established. We would strongly urge the importance, and, we believe, in most cases the possibility, of arriving at an earlier diagnosis. Treatment is much more successful when commenced at this very early stage.

In the section on Diseases of the Digestive System a chapter has been added on the Gastro-Intestinal Bacteria, which contains an excellent *résumé* of the work of Escherich, Booker, and Vaughan. The directions for the treatment of intestinal catarrh of infancy, and for the preventive measures to be taken, are excellent, and should be carefully read by all. Valuable chapters have been added on Intussusception and Appendicitis.

Altogether the work is an eminently practical one, and this edition has been brought up well in accordance with the most advanced thought. It is written in a concise, but pleasing, style. We are convinced that it will easily retain its position as our leading text-book on the subject.

A. D. B.

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Original Communications.

THE ABDOMEN IN INFANCY.

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THE essential differences between the abdomen of the infant and that of the adult are, first, the great size of the liver in the former. This organ, especially on the right side of the abdomen, overreaches on the space which is later occupied by other organs. Second, but of less importance is the relatively large size of the kidneys and the suprarenal capsules. On the left side of the abdomen these conditions are of no great importance; but on the right, occurring as they do, with the great size of the liver, the large kidney occupies a lower position, and thus still further curtails the free space in the right flank.

Viewed from the stand-point of the adult condition, the relations are, as has been pointed out by Henke, much more peculiar on the right than on the left.

The small size of the infant's pelvis is to be noticed also as the cause which, to a greater or less extent, forces the pelvic organs of later life into the abdomen during infancy. In the infant the bladder is practically wholly an abdominal organ. But little of the sigmoid flexure is in the pelvis, and, in the

female, part of the uterus is above the brim. Although small at this age, the bladder soon becomes capable of great distention.

Symington, from a frozen section which he made in the median plane through the body of a child seven months old, shows the position of the bladder which happened to be distended. It takes up, practically, the whole of the lower portion of the abdomen, an observation which at once presents to our minds the difficulty of making a correct physical examination of the infantile abdomen during life, unless we are sure that the bladder is empty.

We have ourselves lately seen a case where, in a child of three years, but of strikingly infantile development, the distended bladder could plainly be seen occupying the lower portion of the abdomen. The little girl had been sent to the children's hospital with the idea that she had a tumor, and on finding her in our wards and making a careful physical examination of the abdomen, it was very evident that the diagnosis of "tumor" was correct, but on emptying the bladder the "tumor" disappeared and revealed the distended abdomen and physical signs of a tubercular peritonitis. The peculiarities of the digestive tract, which we shall consider in more or less detail, arise in part from the above-mentioned causes. They are due also to the different proportionate stages of development of the parts of this tract at different ages, and to differences in their peritoneal attachments. We shall speak of the stomach and duodenum, the length of the intestine, the position and peritoneal relations of the cæcum, and ascending colon and sigmoid flexure.

THE STOMACH.

There is really little that is new to say concerning the stomach, but we shall venture to refresh the memory of our readers with a few words regarding its position and growth. Although it has long been known that in the adult stomach the greater part of the lesser curvature is vertical, and the long axis of the organ more nearly vertical than transverse, yet these facts have been slow in getting into the text-books and winning general recognition. It is probable that it has

so long been taught that the stomach is placed transversely because, when the abdomen is opened a triangular piece of the stomach comes into view, bounded on the left by the costal cartilages, on the right by the edge of the liver, and below by a part of its greater curvature, which runs in a gentle curve from left to right. If this only is seen it is very natural to assume that the stomach is placed transversely. The stomach at birth is remarkably small, and more tubular than in the adult, the fundus being but slightly developed. It is consequently even more vertical than in the adult, for it is the enlargement of the greater *cul-de-sac* that makes the obliquity of the axis pronounced. The stomach grows very rapidly, and peculiarities of shape appear at an early age. We have seen a stomach of four and one-half months which, though small, was relatively broader than in the adult. The adult shape, however, is soon acquired. How permanent this may be is as yet unsettled. There is no doubt that great dilatation may be induced, and it is highly probable that where too small quantities of food are given the normal stomach will contract. It is also very likely that certain shapes are acquired at a very early period. We have seen in a young child a well-marked *antrum pylori*,—that is, a pouch above the pylorus, which, in extreme cases, forms almost a separate chamber. It is very evident that the clinical significance of our anatomical knowledge of the growth of the stomach in the first year is very great. It is, in fact, one of the most important factors in the problem of the artificial feeding of infants, and one which, when not thoroughly understood, often leads to most unfortunate results. A very fair working basis for the determination of the quantity of liquid food which should be given to the infant to correspond to its gastric capacity has been brought to our notice by Frolowsky. This investigator shows that the activity of the stomach's growth is very great in the first quarter of the first year, very slight in the second quarter, and that it again shows a moderate activity in the last half of the year. He represents this activity of the stomach's growth by the ratio of one for the first week to two and one-half for the fourth week, and three and one-fifth for the eighth week, while it is only three and one-third for the twelfth week, three and four-sevenths

for the sixteenth week, and three and three-fifths for the twentieth week. It has also been observed, as has been admirably pointed out by Fleischmann, that the gastric capacity is greater, at the same age, in the artificially-fed than in the breast-fed. This observation, however, in all probability, only emphasizes the importance of bearing in mind the normal gastric capacity of the different ages, and using this knowledge to prevent the overfeeding which has produced such a noticeable difference in the size of the stomach in breast-fed and artificially-fed infants. The cause, however, which produces the most uniform individual differences in the gastric capacity at the same age is the weight of the infant. We are inclined, from the results of our own observations, to agree with Fleischmann's statement that the greater the weight the greater the gastric capacity. A noticeable illustration of the correctness of this rule has lately come under our notice, where a breast-fed infant of twelve months, with a stomach normal in shape, presented a gastric capacity of only one hundred and twenty cubic centimetres (four ounces), which corresponded to its weight, forty-two hundred and eighty-nine grammes (the average normal weight of an infant at two months), rather than to its age, which would, in the average infant, present a gastric capacity of two hundred and forty cubic centimetres (eight ounces). We have also had under our care an infant of six weeks whose general development and weight corresponded so closely to those of the normal average infant of twelve weeks that it was self-evident that the two ounces of food, which would ordinarily have been the proper allowance, so far as the age was concerned, was not sufficient; and that its weight indicated a gastric capacity for an allowance of four ounces, which, in fact, it took and digested with the greatest ease, while with any amount less than the four ounces it was never satisfied. The first month of life, however, being the most critical period for the infant's nutrition, as it is the time when the equilibrium of its metabolism is being established and its chance for life the least, especial attention should be paid to the careful investigations on this point made by Ssnitkin at the Children's Hospital in St. Petersburg. His general results show that, to determine the quantity of food which should be given in the

first month, we should take one one-hundredth of the initial weight and to this add one gramme for every day of life. Thus, if at birth the infant weighed three thousand grammes, we should, when it is fifteen days old, give it at each feeding thirty grammes plus fifteen grammes, which equals forty-five grammes (about one and a half ounces), while, if it weighed forty-five hundred grammes at birth, we should at the fifteenth day give it forty-five grammes plus fifteen grammes, which equals sixty grammes (about two ounces). It is a well-known clinical fact that in infants the fluid contents of the stomach are rejected very easily, or rather, as may be said, run out of themselves. Gubaroff has argued that the cardiac orifice is closed by a valvular arrangement, the œsophagus entering more or less obliquely; but all he says on this point is that the straighter course of the œsophagus in the infant leads one to expect that this valvular action would be weak. This is, of course, a possible cause, but very probably it is merely the result of the overfilling of the infant's stomach to a degree which very rarely occurs in the adult.

DUODENUM.

The duodenum, in the adult, has of late usually been described as ring-shaped, but it generally presents pretty well-marked angles, which divide it into a horizontal part running backward, a descending one along the right side of the spine, a transverse one crossing usually the third lumbar vertebra, and, finally, an ascending part along the left of the column, which brings the end to about the same level as the beginning. Sometimes the last two parts are represented by a single one running obliquely upward to the left, in which case the duodenum is called V-shaped. The first horizontal portion is often somewhat dilated and its walls are smooth, the valves beginning usually with the descending portion. The walls of the duodenum just beyond the pylorus are lined by a continuous layer of Brunner's glands, which extends through the first part, becoming more or less broken up towards the end. In the infant the shape of the duodenum, as shown by plaster casts, is more nearly that of a ring, the two lower angles being rounded off. A constriction is often (perhaps usually) seen at

the junction of the first and second parts, but our casts do not show the folds, which are very striking in the casts taken from adults. That is to say, those of the infant show a few deep cuts into the cast, instead of a great many near together. We have seen the folds, however, very richly developed in an infant of three weeks. In one case, that of a female six weeks old, we have found the duodenum of the V-shaped pattern, and, what is more remarkable, after it had passed the gall-bladder, it was surrounded by peritoneum so as to swing freely as a loop suspended from the posterior abdominal wall. As to Brunner's glands, a few observations on young children have suggested that they were rather less developed relatively than in the adult, but we are by no means sure that this is always the case. The duodenum has been compared to a trap; its ends being always higher than its middle, which is thus fitted to retain the fluid poured into it from the liver, the pancreas, and its own glands, besides that which it receives from the stomach. The number and size of its valves in the adult would tend to delay the passage of matters through it and thus it also prevents the passage of gases from the small intestine upward into the stomach. If it be true, as we are inclined to think it is, that in the infant the system of folds is less developed, its passage would be relatively easy, which with a fluid diet seems desirable.

INTESTINES.

From what we know of the development of the intestinal canal, which was at first merely a loop loosely attached to the posterior abdominal wall, it is natural to expect that in the infant and child the intestine should be less fixed than in adult life; and this is in fact the case. The difference is most striking in the large intestine, and is shown particularly in the cæcum and ascending colon, and in the sigmoid flexure. That this condition gives rise to dangers is evident, and we may say in passing that there is a strong probability that the cases of infantile intussusception which occur with unusual frequency during the middle of the first year may arise from this anatomical peculiarity, which also makes a thorough knowledge of the anatomy of the cæcum so important. The growth

of the different parts of the intestine has been studied by Mr. Treves. He points out that in adults not only does the length of the intestines vary greatly, but that there is no constant relation between the small and large intestines. A long small intestine may be followed by a short large intestine, and *vice versa*, or both parts may exceed or fall short of the average. In the fœtus, at full term, the length of the intestine, and especially of the colon, is singularly constant. Mr. Treves says,—

“The average measurement of the small intestine is nine feet five inches (about two hundred and eighty-seven centimetres), and that of the large intestine one foot ten inches (about fifty-six centimetres). So regular are these measurements that the greatest variation I have met with in the lesser bowel amounted only to two feet (about sixty-one centimetres), while in the colon it was as little as five inches (about one hundred and twenty-seven centimetres). During the first month after birth, it may be reckoned that the small intestines will grow about two feet (about sixty-one centimetres), and a like rate of growth may usually be recorded at the end of the second month of extra-uterine life; but after that period the development of the lesser bowel proceeds in a most irregular manner. Thus in a child of one year the small intestine measured eighteen feet (about five hundred and forty-nine centimetres), while in another, aged two years, the length was only thirteen feet eight inches (four hundred and seventeen centimetres). Again, in a subject aged six years the lesser bowel was no less than twenty-one feet (about six hundred and forty and five-tenths centimetres) in length, while in another child, eleven years of age, its length was fourteen feet (about four hundred and twenty-seven centimetres).”

The large intestine at birth, according to Treves, as we have just said, is one foot ten inches (about fifty-six centimetres). This author has also observed that up to three or even four months the length remains the same, but that nevertheless a remarkable change occurs. This is that the large intestine grows at the expense of the sigmoid flexure, which at birth is nearly one-half of the large intestine, while at four months it has returned to about its permanent proportions. Treves found the large intestine to measure at one year two

feet six inches (about seventy-six centimetres); at six years about three feet (about ninety-one and five-tenths centimetres), and at thirteen years about three feet six inches (about one hundred and seven centimetres). We find among our notes the following measurements of the intestine.

Sex.	Age.	Small Intestine.	Large Intestine.
Girl.....	13 days.	292.9 cm.	48.5 cm.
Girl.....	10 months.	670.0 cm.	78.0 cm.
Boy.....	10 months.	435.0 cm.	90.0 cm.
Girl.....	3 years.	490.0 cm.	84.0 cm.

We fully agree with Mr. Treves that the great variations which appear so early in the length of the small intestine bear no relation to the growth of the child. They probably depend on the diet. Not only is the quantity but the quality of the food an important factor in the growth of the intestine. The amount of residue also and the more or less irritating qualities of the food must all have their effect.

As to the internal structure of the small intestine below the duodenum we can only say that we confirm the view now generally accepted that Peyer's patches are found very early. We have ourselves seen them very early in life, at three days and again at thirteen days.

CÆCUM.

The cæcum is an interesting portion of the intestine at any age and especially in the child. As is well known, the cæcum descends in the course of development from under the liver in the middle of the abdomen to the right iliac fossa, apparently passing first to the right and then descending; thus leaving behind it in its course the right half of the transverse colon and the whole of the ascending colon. It is needless to say that for it to be possible for the cæcum to accomplish this journey it cannot be tightly bound by the peritoneum. On the contrary, the cæcum has a complete peritoneal coat and is perfectly free. At birth, and very possibly for a year or two afterwards, the cæcum has not as a rule reached its permanent position in the right iliac fossa. In about thirty-five observations on children under four years of age, most of them new-

born infants, the cæcum was found in some thirty cases to range from the right lumbar region to the lower part of the iliac fossa. It was very frequently found at the junction of the rather vague lumbar and iliac regions. More or less would usually be found between two parallel horizontal lines, one at the level of the highest point of the crest of the ilium and the other at its anterior superior spinous process. In five cases the cæcum was either in the right iliac fossa or over the true pelvis, the fact being that it was so free as to have no fixed habitation. It is comparatively recently that the truth has been recognized in America, England, and France that normally the cæcum is at every age completely invested by the peritoneum, and that the idea that a large part of the posterior surface rests on areolar tissue without any intervening serous membrane is entirely baseless except in rare instances.

ASCENDING COLON.

In young children the ascending colon differs in some respects from that of the adult. Owing to the high position of the cæcum, to say nothing of the relatively greater size of the liver, it is very short.

There is no question but that the ascending colon much more frequently has a mesentery than in the adult, and also that a relatively larger portion of the part above the cæcum is also invested with peritoneum so as to be absolutely free. More than once we have seen the cæcum and a large part of the ascending colon in this condition. As to the question of how frequently more or less of the back of the cæcum may lack its peritoneal covering, in which case of course it is bound down to the parts beneath it, our observations are rather remarkable. Treves in his *Hunterian Lectures* stated that in one hundred observations he never found the posterior peritoneal covering wanting. Tuffier* examined one hundred and twenty subjects, adults, children, and foetuses, and found the posterior surface uncovered in nine, all of whom were old people. We have kept no systematic record of our observations on adults, but have the following report of thirty-

* *Archives Générales de Médecine*, 1887.

seven young children. In thirty-three the cæcum was completely invested. In four children, all new-born or only a few days old, the whole or a large part of the back of the cæcum was without peritoneum.

Considering that this condition is much more likely to occur in the adult, and that, so far as we know, no one else has observed it in the infant at all, we are inclined to think that our large number of cases (four out of thirty-seven) must be considered an accident, which is liable to happen where a series of observations is small. Putting these cases aside, we repeat that we believe the cæcum of the infant and young child to be more movable than in the adult, and also usually higher.

VERMIFORM APPENDIX.

The length and direction of the vermiform appendix are very variable. We have found it six and a half centimetres in a girl of thirteen days, and five and three-tenths centimetres in one of three years, and of eight centimetres in one of ten months. The vermiform in the first of these cases was so peculiarly placed as to deserve a few words of description. Only a small part was free, the rest being held by a small mesentery to the cæcum and the ascending colon. It arose from the posterior side of the cæcum and ran backward to above the crest of the ilium, where it entered a little peritoneal pouch in the rear wall of the abdomen and then, turning on itself, ran forward again. The entrance to the pouch was guarded below by a semilunar fold of peritoneum with its cavity looking upward. It would appear from Treves's researches that the foetal shape of the cæcum is a pouch hanging down from the point of junction of the small and large intestine and continued into the appendix which grows symmetrically from the middle. Later, however, an irregular growth of one side of the cæcum generally leaves the origin of the appendix near the end of the ilium. We have found that this condition generally prevails in the child. The position and direction of the appendix are most uncertain. It is, however, we believe, usually on the posterior side of the cæcum. Its little mesentery passes to its beginning from the

cæcum and is only exceptionally attached to the walls of the abdomen or pelvis.

The importance of the lymphatic glands about the cæcum as possible starting-points of inflammation is very great. Tuffier states that the lymphatics of the front of the cæcum follow the anterior ileo-cæcal artery to empty into two glands which he has found constantly in the superior ileo-cæcal fold, and which are very distinct in the child. The posterior glands are also found constantly on the posterior and inner wall of the cæcum itself beneath the peritoneum. They usually form a group of from three to six. We have already mentioned the relative shortness of the ascending colon in the infant, and we shall therefore pass on to a consideration of the descending colon and sigmoid flexure.

SIGMOID FLEXURE.

Our observations on the sigmoid flexure in infancy show much diversity. In some cases it is obviously very long, in others apparently of about the adult proportions. As we have made accurate measurements in but few cases, we hesitate to make precise statements, but very frequently even at birth there was no evident departure from the normal adult proportions. A difficulty in this inquiry, which, however, is in itself an important point in anatomy is to decide where the descending colon ends and the sigmoid flexure begins. Thus in a girl of ten months the first impression was that the latter was not relatively longer than in the adult; but it was found later that what must be called the descending colon proper was very short, ending above the top of the crest of the ilium. This portion, a little over an inch in length, had a retro-peritoneal surface. The mesentery then began, and was attached obliquely across the psoas down to the front of the cæcum, where it became the meso-rectum. Thus the greater part of the descending colon formed one loop or series of folds with the sigmoid flexure.* It was also very movable. The greatest breadth of the mesentery was four and eight-tenths centimetres. In another child of the same age it

* This is by no means the only time we have seen this arrangement.

was seven centimetres. We are inclined to think that even in infants, in whom the sigmoid flexure does not, as a rule, seem large, it often has a relatively broad mesentery, allowing free displacement. In two children of three years the sigmoid flexure did not seem to exceed the adult proportion.

DESCENDING COLON.

As is well known, the descending colon usually has no mesentery, but still one is quite often found. Lesshaft,* in his observations made on subjects of many different ages, found it once in six times. We ourselves, in rather more than twenty infants, found a mesentery to the descending colon in about half the cases. It is remarkable that Lesshaft found a mesentery less often in young subjects than in others. To sum up, we find that a great part of the large intestine in infants is less fixed than in adults. We unfortunately have not had at our command sufficient material to enable us to say when the mature condition is reached.

TYPHOID.

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TYPHOID, in the early years of life, is of sufficiently frequent occurrence to justify a review of our progress at short intervals, especially in the domain of treatment; and it is to this field that I am induced to call attention, in the hope that a more rational and effectual method of treatment may be adopted.

I think it may be asserted that there is an increasing belief in the power of drugs in febrile diseases. The practitioner who watches the case and trusts to the *vis medicatrix naturæ* without medication is gradually disappearing, and giving place to the believer in the intelligent use of drugs. This is but a process of development. We cannot ignore the vast strides made

* *Archiv für Anat. und Physiol.*, 1870.

by pharmacy in the last two decades. It requires some expenditure of time and energy to keep pace with the various antipyretics, nerve tonics, and sedatives. If, however, we are to be in touch with the times, we cannot afford to ignore them, for we have to wait a considerable time before they are admitted to the Pharmacopœia and receive the stamp of the official codex. Many of them, unfortunately, merit the witty remark of a French *confrère*, who recommended his brethren to hurry up and try them while they still cure ("Hâtez-vous de vous en servir pendant qu'ils guérissent encore").

Pathology.—I do not propose to give any lengthy description of the pathology of typhoid. One of the latest writers on the subject, Hensch, tells us that out of two hundred and sixty-six cases, forty were fatal,—rather a high mortality, fifteen per cent. In twenty-one of these fatal cases (in which post-mortems were held), there was observed in Peyer's patches enlargement and softening of the glands with ulceration, the ulceration being of a mild character in about half the cases. In only three of the whole twenty-one "had the ulceration and the condition of the intervening mucous membrane the same character as we often find in adults," thus accounting "for the rarity of perforation and hemorrhages in the infantile period." The mesenteric glands are usually enlarged. We occasionally meet, however, with cases in which diarrhœa, tympanitic distention, and the characteristic temperature curve point to typhoid as the only diagnosis, without any of the ordinary post-mortem indications of typhoid being discoverable at the autopsy.

Symptomatology.—The greatest number of cases occurs between four and ten years of age, and it is most prevalent in the autumn. The pulse is generally rapid, one hundred and thirty to one hundred and fifty or more, small and compressible from feeble action of the heart. Enlargement of spleen and rose-rash are usually present, and, in severe cases, cerebral symptoms, grinding of teeth, delirium more or less marked, due to the typhoid intoxication, and the characteristic temperature-curve, with the daily evening exacerbation. There may also be tenderness in the ileo-cæcal region, diarrhœa, and tympanitic distention, and sickness in the early stage.

Treatment.—This should always be made as pleasant as possible for our little patients. If our remedies are repulsive to sight, smell, or taste, we shall not persuade them to swallow them. I have for many years past used the alkaloids in the form of granules manufactured by Chauteaud, of Paris. They are pleasant to the eye and easily swallowed; and if there should be any difficulty in this, they are readily dissolved in a little sugared water. They have been accessible to the profession for the past seventeen years, but are not so well known as their merits deserve. Their success has caused many imitators, but I have found none so reliable. Some, as hyoscyamine and digitalin, are quite unapproachable by any other manufacturer. This can be verified by obtaining specimens of either of these drugs from different houses, when no two will be found alike either in appearance or action. I have on many occasions used these remedies on myself with the best results, and with the certainty of their action. In an article on "Advanced Pharmacy," in the *Lancet*, vol. ii. 1882, p. 994, I drew attention to these "arms of precision," and I have never heard anything but praise from those who have tried them. Let not the practitioner be deterred by the fear that he is using dangerous poisons: they are perfectly innocuous if administered as directed by any intelligent person, and I have never had any trouble to record on this score.

What should be the object of our treatment?

It may be broadly stated, to keep down the temperature, to sustain the vitality of the patient, to disinfect the intestinal tract, and to treat the complications as they arise.

How are these results to be attained?

In the systematic use of the defervescent alkaloids, combining therewith *brucine*, the milder alkaloid of *nux vomica*, to combat and guard against the adynamia which always accompanies typhoid in a sensible or masked form. The defervescents, *aconitine*, *veratrine*, and *digitaline* in one-half milligramme ($\frac{1}{30}$ grain) with *brucine* ($\frac{1}{2}$ milligramme), should be given every half hour or hour, according to the height of the temperature, which should be recorded night and morning, or oftener, if necessary, in severe cases. If there is vomiting, or an irritable stomach, the *veratrine* should be omitted.

Digitaline is a powerful defervescent, lowering temperature, and giving power and tone to the heart and pulse, quickly perceptible at the wrist, and reducing the beat twenty or thirty per minute. If the temperature be reduced, we cannot have a severe case; and if we can keep down the temperature, the fever will be cut short, and jugulated or made to abort. If the temperature is very high, and for the evening exacerbations, we may in addition give three to eight grains of *anti-pyrin*; this is often of advantage in reducing the temperature, and the effect does not pass off for five or six hours, and frequently allows the patient a few hours of sleep.

The diagnosis of typhoid is often a difficult matter, even after many days; but if bowels, spleen, and skin decline to help us, we have always the pyrexia, with evening exacerbation, and the above treatment is indicated, and should be at once initiated with the energy required by the severity of the case. If the temperature is above 102° , give the alkaloid every half-hour, then every hour down to 100° , and every two or three hours down to normal. We are equally safe in our treatment, whatever the ultimate diagnosis to which the high temperature points; whether head, chest, or abdomen be the site of the inflammation; for the high temperature in all these cases is the dangerous factor, and is to be combated by the same weapons.

For the disinfection and healing of the intestinal tract, *salol* in four- to eight-grain doses should be given three or four times in the twenty-four hours. I have found this remedy of the greatest benefit for this purpose. Its action is similar on the kidneys, and is most beneficent. Emulsified with pulverized tragacanth compound and orange-flower water, it is readily taken by children, having nothing repulsive to sight or taste, and its good effects are at once apparent. We are taught that it is split up into salicylic acid in the intestine, passing through the stomach unchanged, and it exercises a healing influence on the diseased mucous membrane at whatever stage of the fever it may be given. As to its action on the urinary tract, I may mention that I had recently an old man with chronic cystitis from enlarged prostate, whose urine was rendered quite clear, from a condition of pease soup

and ropy mucus, in the course of a week or two, after all ordinary treatment had failed.

In the case of hemorrhage from the bowel (a very rare event compared with typhoid in the adult), *ergotine*, one centigramme ($\frac{1}{8}$ grain), should be given every hour till relieved, and an ice-bag applied to the abdomen. It will be of much less frequent occurrence if salol be given as a routine treatment, and the motions will be deprived of their offensive character, almost diagnostic of decomposing blood. The distention of the abdomen due to flatus, the manufacture of gas with its abundant borborygmus will in like manner disappear.

In cases in which the bowels are confined, or act only slightly, or where the motions are scybalous, half a teaspoonful to a teaspoonful (according to age) of the granular dehydrated sulphate of magnesia (*Seidlitz charteaux*), dissolved in a wine-glassful of water, should be given each morning; indeed the "lavage" or washing out of the bowels daily is most useful in all cases, to clear out any offending material, and for the better action of the disinfecting power of the salol, even if there be diarrhoea. This latter, if excessive, will be best checked by *salicylate of bismuth* (2 to 5 grains) and *quebracho* (20 to 30 drops) with *syrupus aurantii*; and if griping or tormina be present, by *hyoscyamine* ($\frac{1}{4}$ milligramme) one two-hundred-and-sixtieth of a grain, in the form of granules, to be discontinued as the diarrhoea is controlled. If the lower bowel be loaded, it may be well to commence the treatment with an enema of half a pint of soap-and-water with an ounce of glycerin.

In the vomiting of the initial stage, as well as that caused by or associated with colic or spasm of the bowel, *hyoscyamine* is to be preferred to morphia or any opiate ($\frac{1}{4}$ milligramme every hour till relieved). No drug has an equal power of arresting spasm of involuntary muscular fibre, whether of stomach, bowel, bladder, or uterus; and it should always be given in small doses, at short intervals, till relief is obtained, and then discontinued, or given at longer intervals. Its only disadvantage is that it produces some dryness of the throat, if it has to be given for any length of time, which is rarely the case, two or three doses being all that is required as a rule.

For the delirium and restlessness which sometimes occur,

chloralamid, five to fifteen grains, or *sulphonal*, two to five grains, according to age, in a little wine-and-water will often produce quiet sleep. Henoch mentions a case of maniacal delirium quickly relieved by an enema containing thirty-five grains of chloral, where morphia and warm bath had no effect. Opiates in any form should be avoided, as they tend to aggravate the trouble by causing cerebral congestion.

When the temperature remains for twenty-four hours below 100°, the defervescent alkaloids may be kept in abeyance, and in their place *arseniate of quinine* (1 or 2 milligrammes) along with *brucine*, given every two or three hours. And to promote appetite and digestion, *quassine* (1 or 2 milligrammes) three times a day before food.

The diet should be carefully considered also; only liquids during the febrile stage. When the stomach is irritable and digestion in abeyance, *Denæger's peptone of meat*, in teaspoonful doses, every hour, will be retained by the stomach when beef-tea and other foods are rejected. Milk may be given in small quantities, if tolerated; or with an equal quantity of lime-water, if there be sickness. If the milk be rejected, as it is occasionally, in masses of curd, it may be tolerated by the stomach if given in the form of artificial human milk, by removing one-third of the casein by Dr. Frankland's method. (See *Lancet*, vol. ii., 1884, p. 322.)

SPONDON, DERBY, March, 1891.

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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(Continued from April number.)

A. THE NOSE.

DISEASES OF THE NOSE.

(2) *Chronic Rhinitis.*

(c.) Purulent Rhinitis of Children.

DEFINITION.—A form of chronic catarrhal inflammation of the nasal mucous membrane peculiar to early childhood, appearing usually at some period between the third and sixth years, and characterized mainly by a profuse muco-purulent discharge from the nasal passages without any grave symptoms of constitutional involvement, and never attended with ulceration and destruction of the nasal bones and cartilages.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Frequent and acute coryzas.
- (2) Insufficient clothing.
- (3) Poor hygienic surroundings.

2. *Exciting causes.*

- (1) Indiscretion in diet.
- (2) The exanthemata.
 - a. Measles.
 - b. Scarlet fever, etc.

PATHOLOGY.—

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| 1. <i>Macroscopic.</i> | { | (1) <i>Nose.</i> | a. Mucous membrane turgescent, covered with crusts and flakes of yellowish mucus; color, dark red. |
| | | | b. Turbinated bodies, atrophied; flakes of yellowish mucus upon lower bone. |
| | | (2) <i>Pharynx.</i> | Reddened, inflamed, dotted with shreds of mucus. |
| | | (3) <i>Larynx.</i> | Inflamed, irritated. |
| 2. <i>Microscopic.</i> | { | (1) <i>Nasal mucous membrane.</i> | a. Profuse desquamation of unformed epithelial cells. |
| | | | b. Abundant formation of pus-corpuscles. |
| | | | c. Glandular structure destroyed. |
| | | | d. Cirrhosis of mucosa. |

SYMPTOMS.—

- (1) *Nose.* a. Respiration slightly obstructed (*from accumulation of scabs*), oral; occasional attacks of dyspnœa.
 b. Discharge muco-purulent, thick, yellowish, slightly offensive (*late stage*); bilateral.
 c. Sneezing frequent; frequent acute coryzas.
 d. Formation of crusts in anterior nares and nostrils.
1. *Local.* { (2) *Mouth.* a. Open; expression dull.
 b. Breath fetid.
 c. Voice nasal.
 d. Cough laryngeal, dry, hacking.
 e. Expectoration usually absent.

2. *General.* General health good.

DURATION.—Five to fifteen years.

SEQUELÆ.—Atrophic rhinitis (*Bosworth*).

DIAGNOSIS.—1. From ulcerous coryza.

Purulent Rhinitis.

1. Parental history negative.
2. Never develops earlier than the third or fourth year.
3. Child apparently in a healthy condition.
4. No cachexia.
5. In the early stage an exceedingly mild affection, not characterized by any notable nasal stenosis, nor by much destruction of tissue.
6. Always bilateral.
7. Nasal mucous membrane but slightly swollen.
8. Nasal discharge profuse, purulent or muco-purulent, clear, and of but a slightly offensive odor.
9. Unaccompanied by any cutaneous eruption.
10. Followed by no nasal deformity.
11. Duration greatly prolonged, the disease lasting from five to fifteen years.
12. Prognosis good as a rule.

2. From acute Blennorrhœa of infancy.

Purulent Rhinitis.

1. Occurs between the age of three and six years.
2. Runs a protracted course of years.
3. Symptoms essentially chronic in their nature.
4. Disease confined to the nose.

Ulcerous Coryza.

1. Parental history specific or tubercular.
2. Frequently develops in the early months of infancy.
3. Child small, weak, anæmic, poorly nourished.
4. Child markedly cachectic.
5. Severe from the beginning, with complete nasal stenosis, and great destruction of tissue.
6. Unusually unilateral.
7. Nasal mucous membrane intensely swollen.
8. Nasal discharge profuse, purulent, containing masses of black, necrotic tissue and pieces of bone and cartilage, and of an intensely offensive and gangrenous odor.
9. Accompanied by characteristic cutaneous eruption.
10. Followed by characteristic deformity, flattening of nasal bridge, or destruction of tip and alæ of nose.
11. Duration short, covering a few weeks or months.
12. Prognosis always grave.

Acute Blennorrhœa.

1. Occurs at childbirth.
2. Of but short duration.
3. Symptoms very acute.
4. Involvement of the conjunctival mucous membrane sooner or later.

3. From foreign body in the nose (*vide*).

PROGNOSIS.—1. Good, *before serious involvement of glandular structure*.
2. Bad, *as regards cure in late stage*.

TREATMENT.—1. *Prophylactic*. (1) Cold sponge bath daily (*Bosworth*).

- (2) Regulation of diet.
- (3) Ventilation of bedchamber.
- (4) Proper clothing (*wool*).

2. *Local*. (1) *To cleanse nasal chambers*.

a. Irrigation of nose (*by Weber's nasal douche*).

- (a) Warm lime-water. } 5 or 6
- (b) Solution boric acid. } times

b. Sprays *two or three times daily*.

- (a) Ichthyol.
- (b) Carbolic acid.
- (c) Listerine.
- (d) Dobell's solution.
- (e) Thymol.

(2) *To stimulate the mucous membrane*.

a. Astringent application.

(a) Zinc sulphocarbolate, gr. v to $\bar{3}$ i.

(b) Boracic acid, $\bar{3}$ ss to $\bar{3}$ i.

(c) Alum, gr. x to $\bar{3}$ i.

(d) Salicylic acid, gr. iss to $\bar{3}$ i.

(e) Glycerole of tannin, $\bar{3}$ i to $\bar{3}$ i.

(f) Silver nitrate, gr. iii to $\bar{3}$ i.

(g) Zinc sulphate, gr. iii to $\bar{3}$ i.

(h) Potassium permanganate, gr. iii-v to $\bar{3}$ i.

(i) Copper sulphate, gr. ii to $\bar{3}$ i.

(j) Aluminium aceto-tartrate, gr. x to $\bar{3}$ i.

(k) Skimmed milk.

(l) Buttermilk.

3. *General*. (1) *To maintain general health*.

a. Cod-liver oil.

b. Tonics.

FORMULÆ.—1. Antiseptic spray (*Bosworth*).

R Ichthyol, gr. i;
Potas. chloridi, $\bar{3}$ ss;
Liquor calcis, ad $\bar{3}$ vi. M.
S.—Use in atomizer.

2. Antiseptic spray (*Bosworth*).

R Acid. carbol., gr. iii;
Sod. bicarb., gr. xii;
Sod. biborat., $\bar{3}$ ss;
Glycerini, $\bar{3}$ vi;
Aquæ, ad $\bar{3}$ vi. M.
S.—Use in atomizer.

3. Antiseptic spray (*Bosworth*).

R Listerini, $\bar{3}$ ss;
Sod. biborat., $\bar{3}$ ss;
Glycerini, $\bar{3}$ vi;
Aquæ, q.s. ad $\bar{3}$ vi. M.
S.—Use in atomizer.

4. Antiseptic spray (*Bosworth*).

R Thymol, mxx;
 Sod. chloridi, ℥ss;
 Sod. benzoat., gr. xx;
 Aquæ, ad ℥vi. M.
 S.—Use in atomizer.

5. Astringent lotion (*Bosworth*).

R Zinc. sulphocarb., gr. xx;
 Hydrarg. chlor. corros., gr. $\frac{1}{2}$;
 Aquæ, ad ℥iv. M.

S.—Apply to nasal mucous membrane.

b. GRAVE CHRONIC RHINITIS.

SYNONYMES.—1. Ulcerous Coryza (*Robinson*).

2. Ulcerous Rhinitis.

DEFINITION.—A comparatively rare condition as occurring in childhood, consisting essentially in a chronic inflammatory affection of the nasal mucous membrane and integument, a local manifestation of some existing systematic dyscrasia, either specific, scrofulous, or tubercular, and characterized by a pronounced tendency to excavate and spread to the contiguous parts, resulting in extensive ulceration and destruction of tissue, together with marked evidence of profound constitutional disturbance.

VARIETIES.—1. Specific rhinitis.

2. Tubercular rhinitis.

3. Lupus of the nose.

(a) Specific Rhinitis.

DERIVATION.—*Species, facere*.

SYNONYMES.—1. Nasal syphilis.

2. Hereditary syphilis.

3. Congenital syphilis of the nose.

4. Syphilitic rhinitis.

5. The sniffles.

DEFINITION.—A congenital inflammatory condition of the nasal mucous membrane, the result of the action of the specific virus acquired from one or the other parent, and manifesting itself either as an affection of the fœtus *in utero* as evidenced by nasal disease immediately after birth, or more commonly not manifesting itself until the third or fourth month of life, when it appears as a coryza of short duration quickly followed by evidences of grave systemic dyscrasia and by rapid ulceration and destruction of the nasal bones and cartilages, resulting in the characteristic deformity,—a flattening of the nasal bridge.

ETIOLOGY.—Inherited syphilitic virus.

PATHOLOGY.—

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| 1. Macroscopic. | { | <p>(1) Nose. a. Mucous membrane inflamed, intensely swollen; containing mucous patches and gummatous deposits (<i>early stage</i>); covered with black offensive crusts; at times bloody, and bathed in an unhealthy pus (<i>later</i>).</p> <p>b. Septum containing ulcerous formations (<i>rare</i>); destruction of cartilaginous portion. Ulcer, deep, excavating; edges ragged, inverted; surface covered with dirty-looking yellow pus; surrounded by a bright-red, glassy-looking areola.</p> <p>c. Vomer partially destroyed (<i>occasional</i>).</p> <p>d. Nasal bones destroyed (<i>occasional</i>).</p> <p>(2) Pharynx. a. Mucous membrane reddened, inflamed, containing mucous patches.</p> <p>b. Hard palate destroyed (<i>occasional</i>).</p> |
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SYMPTOMS.—

1. *Stage of Coryza.*(1) *Local.*

- a. Nose.* (a) Respiration occluded, partially noisy, difficult sniffing, oral.
- (b) Discharge sero-purulent, profuse, watery, acrid, often blood-streaked.
- (c) Sneezing frequent.
- b. Mouth.* (a) Nursing interfered with.
- (b) Cry hoarse, high-pitched.
- (c) Teeth, Hutchinson variety.
- (d) Lips contain mucous patches.

(2) *General.*

- a. Face* pinched, old-man appearance.
- b. Complexion* pale, earthy, cachectic, yellowish or *café-au-lait* color (*Starr*).
- c. Emaciation* profound.
- d. Febrile action* absent.
- e. Skin* dry, parchment-like, withered, scaly (*often*), containing mucous patches and characteristic eruption (*first appearing about anus and buttocks*).
- (a) Papules typical, copper-color, elevated (*Bäumler*).
- (b) Macules (*Romberg, Van Harlingen*).
- (c) Ecthyma frequent (*Starr*).
- (d) Pemphigus on palms of hands and soles of feet.

2. *Stage of Ulceration and Necrosis.*

(1) *Local.*

- a. *Nose.* (a) Respiration completely occluded, oral.
- (b) Discharge mucopurulent, or purulent, profuse, acrid; frequently blood-tinged; containing shreds of black, necrotic tissue and large, dark, bloody, crater-like casts; intensely offensive, gangrenous.
- (c) Ulcerous formations in nasal cavities on septum, covered with hard incrustations.
- (d) Destruction of cartilage and bone.
- (e) Nostrils excoriated.
- (f) External deformity.
 - a. Nasal ridge depressed or flattened.
 - β. Frontal sinuses protruded.
 - γ. Alæ of nose depressed.
 - δ. Nostrils partially collapsed.
- b. *Mouth.* (a) Breath fetid.
- (b) Lips excoriated.
- a. Prostration great.
- b. Emaciation progressive, profound.
- c. Febrile action absent.
- d. Reflex brain disturbances (from retention of purulent discharge).
 - (a) Headache severe.
 - (b) Epileptiform convulsions (occasional).
 - (c) Coma (occasional).
- e. Death frequent.

(2) *General.*

DURATION.—Short, three to four months.

SEQUELÆ.—1. *Nasal.* Destruction of cartilaginous septum and bony nose.

2. *General.* Marasmus.

DIAGNOSIS.—1. From rhinitis atrophica.

Specific Rhinitis.

1. Always develops in the early months of life.
2. Cause specific, the syphilitic virus transmitted through one or other parent.
3. Attended with great cachexia.
4. Nasal mucous membrane intensely swollen.
5. Nasal mucous membrane covered with crusts of necrotic tissue, black, at times bloody, and bathed in unhealthy pus.
6. Nasal discharge profuse, watery, acrid at first, later muco-purulent or purulent, containing masses of black, necrotic tissue, extremely offensive.
7. Fetor of discharge intensely gangrenous.
8. Accompanied by the characteristic nasal deformity.
9. Accompanied by characteristic cutaneous eruption.
10. Duration short.
11. Frequently fatal.

2. From acute coryza (*vide*).

3. From tubercular rhinitis (*vide*).

4. From lupus of the nose (*vide*).

PROGNOSIS.—Bad, the earlier the development and the more extensive the ulceration.

TREATMENT.—1. Local. (1) To restore normal patency of nasal passages in early stage.

a. Spray of cocaine half-per-cent. solution.

b. Emulsion of cocaine.

(2) To protect the mucous membrane of nostrils and lips.

a. Application of unguents.

(a) Vaseline.

(b) Cold cream.

(c) Mutton tallow.

(d) Goose tallow.

(3) To remove and prevent the return of incrustations.

a. Sprays.

(a) Warm water.

(b) Solution of silver nitrate, grs. v-xx to ʒi .

b. Application of mercurials to mucous membrane.

(a) Oleate of mercury, few drops once daily.

Rhinitis Atrophica.

1. Usually occurs at some period between the fifth and fifteenth years.
2. Cause non-specific.
3. Attended with no cachexia.
4. Characterized by pronounced atrophy of the nasal mucous membrane.
5. Nasal mucous membrane covered with greenish, gray, yellowish, or brownish crusts, and very dry.
6. Nasal discharge scanty, viscid, mucous, or muco-purulent, offensive.
7. Fetor of discharge peculiar, musty, resembling the odor of crushed bed-bugs.
8. Unattended with nasal deformity.
9. No cutaneous eruption.
10. Duration greatly prolonged.
11. Rarely fatal.

- (b) Ammoniated mercury ointment, half official strength.
- (c) White-precipitate ointment.
- (d) Diday's ointment.
- (e) Dilute mercurial ointment (*with once or twice its weight of unguentum petrolii*).
- (4) *To cleanse the nostrils.*
 - a. *Alkaline lotions.*
 - (a) Solution of salt and water, \mathfrak{z} i to Oi, twice daily.
 - (b) Dobell's solution.
- (5) *To arrest ulcerative processes.*
 - a. *Insufflations.*
 - (a) Powdered iodol.
 - (b) Powdered iodoform.
 - b. *Sprays.*
 - (a) Aristol, gr. 30, to \mathfrak{z} i of benzoinol (*Phillips*).
- 2. *Constitutional.* (1) *Externally.*
 - a. *Inunctions.*
 - (a) Mercurial ointment, gr. v to \mathfrak{z} ss daily.
 - (b) Oleate of mercury, twenty per cent., \mathfrak{m} ii-iii daily. Spread ointment on flannel roller, stitch around thigh just above knee; renew every day for two or three weeks (*Brodie, Erichsen*).
 - b. *Baths.*
 - (a) Corrosive sublimate, \mathfrak{z} ss- \mathfrak{z} iss to each bath, every two or three days.
- (2) *Internally.*
 - a. *Mercurials.*
 - (a) Gray powder, gr. i, twice daily.
 - (b) Calomel, gr. $\frac{1}{12}$ -i, twice daily.
 - (c) Protiodide, gr. $\frac{1}{10}$ - $\frac{1}{8}$, twice daily.
 - (d) Bichloride, gr. $\frac{1}{20}$, thrice daily (with Dover's powder, gr. i).
 - b. *Alteratives and tonics.*
 - (a) Potassium iodide, gr. ii, thrice daily (*during ulcerative stage*).
 - (b) Cod-liver oil.

3. *Hygienic.* (1) Daily cold bathing.
(2) Good sanitation.

FORMULÆ.—1. Solution of cocaine, half per cent. (*Bosworth*).

R Cocainæ hydrochlorat., gr. iii;
Sodii biborat., gr. vi;
Aquæ, ad $\bar{3}$ i. M.
S.—Use in atomizer.

2. Emulsion of cocaine (*Bosworth*).

R Cocaine hydrochlorat., gr. iii;
Aquæ, \mathfrak{m} x;
M. ft. sol., et adde
Ol. menth. pip., \mathfrak{m} v;
Ol. amygdalæ, $\bar{3}$ i. M.
S.—Shake before using.

3. Diday's ointment.

R Calomel, grs. ii-iv;
Lard, $\bar{3}$ i. M.
S.—Apply as desired.

(b) Tubercular Rhinitis.

DERIVATION.—*Tuberculum*, a pimple.

SYNONYMES.—1. Scrofulous rhinitis.

2. Scrofulous ozæna.

3. Strumous rhinitis.

4. Tubercules de la membrane pituitaire (*French*).

5. Tuberkel der membrana pituitaria (*German*).

6. Tubercoli della membrana pituitaria (*Italian*).

7. Tubercula membranæ pituitariæ.

DEFINITION.—A form of chronic inflammation of the nasal mucous membrane of a somewhat rare occurrence, but much more common in childhood and youth than is generally supposed, which is characterized by the deposit upon the mucous membrane of the septum and lower nasal channels of the tubercle bacillus, resulting in the formation of miliary nodules which eventually break down into small, grayish-yellow, crust-covered ulcerations of slow growth and with but slight tendency to spread to the adjacent structures, and which is usually, sooner or later, associated with the manifestations of general tuberculosis, if not secondary to that disease.

VARIETIES.—1. Primary (*rare*).

2. Secondary (*to tuberculosis elsewhere*).

(1) Miliary.

(2) Ulcerative.

(3) Neoplastic.

ETIOLOGY.—1. *Predisposing causes.*

(1) Strumous diathesis.

(2) Hereditary influence.

(3) Morbid condition of the nasal mucous membrane.

2. *Exciting cause.*

Deposit of the tubercle bacillus.

PATHOLOGY.—

- (1) *Miliary variety.* a. Nasal mucous membrane, covered with nodules.
 - (a) *Size.* Bird shot to pea.
 - (b) *Surface.* Mammillated, raspberry-like, with spots of disintegration.
 - (c) *Color.* Grayish or yellow.
 - (d) *Attachment.* Sessile.
 - (e) *Seat.* Septum, lower and middle turbinated bones.
- (2) *Ulcerative variety.* a. Nasal mucous membrane containing ulcerations.
 - (a) *Size.* Small, no apparent loss of tissue.
 - (b) *Edges.* Irregular.
 - (c) *Surface.* Covered with brownish crusts, under which is a whitish-gray mucus (*usual*), or a thin yellow pus (*rare*); slight tendency to bleed; not surrounded by an areola.
 - (d) *Color.* Whitish-gray or dirty yellow.
 - (e) *Seat.* 1. Septum.
2. Floor.
3. Lower turbinated bone.
4. Middle turbinated bone.
- (3) *Neoplastic variety.* a. Nasal mucous membrane containing large tumors.
 - (a) *Surface.* Mammillated; flattened somewhat; of a regular contour.
 - (b) *Color.* Reddish-gray.
 - (c) *Seat.* 1. Septum.
2. Turbinated bones.
 - (d) *Involvement of bone* (*rare*).

1. Macroscopic.

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| | { | (1) <i>Nasal mucous membrane.</i> <i>a.</i> Gland epithelium degenerated. |
| | | <i>b.</i> Infiltration into tissues of round nucleated lymph-cells. |
| | | <i>c.</i> Deposit of miliary tubercles abundant, composed of— |
| | | (<i>a</i>) Basement membrane, fine connective tissue. |
| 2. <i>Microscopic.</i> | | (<i>b</i>) Connective tissue, abundant. |
| | | (<i>c</i>) Granulation tissue, abundant. |
| | | (<i>d</i>) Epithelial or endothelial cells, large, nucleated. |
| | | (<i>e</i>) Giant cells occasional. |
| | | (<i>f</i>) Tubercle bacilli. |

SYMPTOMS.—

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| { | (1) <i>Nose.</i> <i>a.</i> Respiration obstructed, noisy, oral. |
| | <i>b.</i> Discharge mucous, or muco-purulent, profuse; color grayish-white, slightly fetid at times (<i>Mackenzie, et al.</i>), containing tubercle bacilli. |
| | <i>c.</i> Formation of crusts, numerous, large, of a brownish or fawn color, dry, fetid. |
| | <i>d.</i> Epistaxis occasional, slight. |
| | <i>e.</i> Pain rare. |
2. *General.* Usually associated with the symptoms of general tuberculosis (*vide*).

DURATION.—Prolonged.

DIAGNOSIS.—1. From Specific rhinitis.

Tubercular Rhinitis.

1. Never occurs in infancy, but comparatively frequent in youth and early adolescence.
2. History of inherited scrofulous or tubercular diathesis.
3. Child bright, intelligent, pretty, —the tuberculous appearance.
4. Usually associated with other tubercular lesions.
5. No cutaneous eruption as a rule.
6. Nasal discharge mucous, profuse, grayish-white, slightly offensive.

Specific Rhinitis.

1. Always develops at birth, or in the early months of infancy.
2. History of specific parental trouble.
3. Child yellow, wasted, wrinkled, "old-man" appearance.
4. Associated with the other lesions of constitutional syphilis.
5. Accompanied by the characteristic cutaneous eruption.
6. Nasal discharge profuse, watery, acrid at first; later, purulent, containing necrotic masses, and extremely offensive.

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| <p>7. Nasal crusts large, dry, brownish, fetid.</p> <p>8. Ulcerations small, with no apparent loss of tissue, with irregular edges, of a whitish-gray or dirty-yellow color, not surrounded by areolæ, and usually situated upon the septum or nasal floor.</p> <p>9. Not followed by nasal deformity, as a rule.</p> <p>10. Course very chronic.</p> <p>11. Prognosis unfavorable,—treatment unavailing.</p> | <p>7. Nasal crusts bloody, composed of black, necrotic tissue, gangrenous.</p> <p>8. Ulceration large, deep, excavating, with ragged, inverted edges, covered with a dirty-looking yellow pus, surrounded by bright glassy-looking areolæ, and always situated upon the septum.</p> <p>9. Always followed by the characteristic nasal deformity.</p> <p>10. Course very rapid.</p> <p>11. Prognosis grave, but disease usually amenable to antisyphilitic treatment.</p> |
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2. From lupus of the nose.

Tubercular Rhinitis.

1. Usually associated with tubercular trouble elsewhere.
2. In the early stage the disease appears as a *single* crop of miliary nodules, mammillated, of a *grayish or yellow* color, with spots of disintegration, and situated upon the septum and lower turbinated bones.
3. Ulcerations small, with no apparent loss of tissue, with irregular edges, of a whitish-gray or dirty-yellow color, and usually situated upon the septum or nasal floor.
4. Ulcerations show but a slight tendency to spread to the adjoining tissues.
5. Ulcerations show no decided tendency to heal.
6. Nasal discharge mucous, profuse, grayish-white, slightly offensive.
7. Epistaxis occasional, though not frequent.
8. Usually not followed by nasal deformity.
9. Prognosis bad as regards ultimate cure.

Lupus of the Nose.

1. Associated with and usually secondary to lupoid disease of the skin of the nose.
2. In the early stage the disease appears as a *succession* of crops of irritable masses of a *red* color, situated upon the cartilaginous septum.
3. Ulcerations large, elevated above the surrounding surface, granular, soft, pulpy, non-vascular, of a red or reddish-brown color, covered with a grayish or whitish mucus, and situated upon the cartilaginous septum.
4. Ulcerations show great tendency to spread to and involve the adjoining tissues.
5. Ulcerations always show a tendency to heal, starting in centres of cicatrization in the parts first invaded.
6. Nasal discharge thin, seromucous, scanty, rarely offensive.
7. Epistaxis never or very rare.
8. Followed by extensive destruction of tissue with great deformity.
9. Prognosis good as regards cure, bad as regards deformity.

PROGNOSIS.—Unfavorable.

TREATMENT.—1. *Local.* (1) *Detergent and disinfectant lotions by spray.*

- a. Dobell's solution.
- b. Water and glycerin.

(2) *To arrest the growth of disease.*

- a. *Insufflations.*
- (a) Powdered iodoform.

2. *Constitutional.* (1) *Alteratives and tonics.*
 a. Cod-liver oil.
 b. Maltine.
 c. Potassium iodide.

3. *Surgical.* (1) *To remove diseased tissue.*
 a. Snare.
 b. Curette.
 (2) *Cauterization of base.*
 a. Galvano-cautery.
 b. Chemicals.
 (a) Lactic acid (*Cartaz*).

FORMULA.—Emulsion of cod-liver oil (*altered from Pharmacopœia Philadelphia Hospital*).

R Ol. morrhuae, ℥ iss;
 Ol. gaultheriæ, gtt. xii;
 Ol. menth. pip., gtt. xii;
 Syr. acaciæ, q.s.
 Aquæ, q.s. ad ℥ i. M.
 S.—Tablespoonful contains ℥ i of oil.

(c) *Lupus of the Nose.*

(*Described by Bresgen, Clutton, Collis, Cozzolino, Kikuzi, Kough, Moinel, Rafin, Reed, Rigal, Schmiegelow, Shurley, Starke, Van Santvoord, etc.*)

DERIVATION.—*Lupus*, a wolf.

- SYNONYMS.—1. *Lupus membranæ pituitariæ.*
 2. *Lupus de la membrane pituitaire (French).*
 3. *Lupus der membrana pituitaria (German).*
 4. *Lupus della membrana pituitaria (Italian).*

DEFINITION.—A serpiginous, infective, specific, chronic inflammation of the nasal mucous membrane, usually occurring between the ages of three and fifteen years, due to the deposit therein of a specific virus, probably tubercular in nature and usually an extension from a similar diseased condition of the skin of the face and nose, running an extremely chronic course, and characterized by the appearance of successive crops of reddish, irritable, granulation corpuscles, the so-called "lupus nodules," which eventually break down and coalesce to form large, elevated ulcerations with a marked tendency to invade the contiguous parts, resulting in extensive destruction of tissue both within and without the nasal cavities, and gradually healing in the parts first invaded by cicatricial formation with great deformity.

- VARIETIES.—1. *Primary (rare).*
 2. *Secondary.*

- ETIOLOGY.—1. *Predisposing causes.*
 (1) Strumous diathesis.
 (2) Early age.
 (3) Sex, *about sixty per cent. in females.*
 (4) Morbid condition of the nasal mucous membrane.

2. *Exciting cause.*
 Deposit of specific virus (*probably tubercular*).

PATHOLOGY.—

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| 1. <i>Macroscopic.</i> | { | (1) <i>Nose.</i> | <i>a.</i> Mucous membrane swollen, reddened.
<i>First stage</i> , containing large number of lupus nodules:
(<i>a</i>) <i>Size.</i> Small, bird-shot.
(<i>b</i>) <i>Color.</i> Red.
(<i>c</i>) <i>Seat.</i> 1. Cartilaginous septum.
2. Nasal walls.
<i>Second stage</i> , containing ulcerations:
(<i>a</i>) <i>Size.</i> Large, irregular.
(<i>b</i>) <i>Surface.</i> Covered with scabs, broad, flat, adherent, red or reddish-brown, elevated, granular; beneath, non-vascular, exceedingly soft, pulpy, painless, covered with tenacious mucus; centres of cicatrization.
(<i>c</i>) <i>Color.</i> Grayish or whitish.
(<i>d</i>) <i>Seat.</i> Cartilaginous septum. |
| | | <i>b.</i> Skin indurated, thickened, reddened; epithelium, shiny, cracked; formation of crusts, composed of
(<i>a</i>) Serum.
(<i>b</i>) Epithelium.
(<i>c</i>) Sebaceous matter. | |
| | | <i>c.</i> Deformity extreme; destruction of tip, alæ, cartilaginous septum. | |
| | | (2) <i>Lips.</i> Destroyed partially or completely (<i>occasional</i>). | |
| | | (3) <i>Gums.</i> Destroyed, exposure of bone (<i>occasional</i>). | |
| | | (1) <i>Nasal mucous membrane.</i> | <i>a.</i> Gland epithelium fatty, degenerated. |
| | | | <i>b.</i> Tissues infiltrated between connective tissue bands, with small, round-celled corpuscles. |
| | | | <i>c.</i> Grouping of cells around the blood-vessels (<i>lupus nodules</i>). |
| | | | <i>d.</i> Presence of giant cells. |
| | | | <i>e.</i> Presence of tubercle bacilli (<i>occasional</i>). |

2. *Microscopic.*

SYMPTOMS.—

- | | | | |
|------------------|---|--|---|
| 1. <i>Local.</i> | { | (1) <i>Nose.</i> | <i>a.</i> Respiration partially obstructed.
<i>b.</i> Discharge thin, sero-mucous, scanty, rarely offensive, though at times very.
<i>c.</i> Pain slight, never distressing.
<i>d.</i> Anosmia partial or complete.
<i>e.</i> Formation.
(<i>a</i>) Of successive crops of nodules on skin and mucous membrane.
(<i>b</i>) Of ulceration. |
| | | <i>f.</i> Formation of crusts broad, flat, brownish, adherent; forcible removal at times attended with bleeding. | |
| | | <i>g.</i> Deformity, destruction of tissue, formation of cicatrices. | |
| | | <i>h.</i> Progress slow. | |
| | | <i>i.</i> Tendency to relapses marked. | |

DURATION.—Long; two to eight years.

DIAGNOSIS.—1. From specific rhinitis.

Lupus of the Nose.

1. Rare in infancy, occurring usually between the third and fifteenth years.
2. History of inherited strumous diathesis.
3. Child presents the strumous appearance.
4. Associated with and usually secondary to lupoid disease of the skin of the nose and face.
5. Constitutional involvement slight.
6. Nasal discharge thin, sero-mucous, scanty, rarely offensive, never blood-tinged.
7. Ulcers elevated, non-vascular, non-offensive, covered with red or reddish-brown scabs.
8. Destruction of external nasal tissue.
9. Deformity ulcerative, cicatricial; extensive destruction of tissues of nose and mouth.
10. Course very chronic, two to eight years.
11. Does not respond readily to treatment.
12. Rarely fatal of itself.

2. From tubercular rhinitis (*vide*).

3. From sarcoma of the nose (*vide*).

PROGNOSIS.—1. Good, as regards recovery.

2. Grave, as regards deformity.

TREATMENT.—1. Local. (1) *Excision of diseased tissues (under cocaine anæsthesia).*

a. *By curette.*

(a) Volkmann's spoon.

b. *By caustics.*

(a) Chromic acid (*Bresgen*).

(b) Lactic acid, eighty per cent. (*Rafin*).

(c) Nitric acid.

(d) Caustic potash.

(e) Chloride of zinc.

(f) Galvano-cautery.

c. *By caustic punctures with acne lance.*

(a) Stick silver nitrate.

(b) Caustic lotion (*Unna*).

Specific Rhinitis.

1. Common in infancy, occurring usually before the fourth month.
2. History of specific parental trouble.
3. Child presents the characteristic appearance of inherited syphilis.
4. Associated with the characteristic cutaneous eruption about the buttocks and genitalia.
5. Constitutional involvement profound.
6. Nasal discharge purulent, profuse, frequently blood-tinged, containing black, necrotic shreds, and of a gangrenous odor.
7. Ulcers (*mucous patches*), first stage, slight superficial; later, deep, excavating, inverted edges, very offensive, covered with black, necrotic, at times bloody, scabs.
8. No external nasal manifestations.
9. Deformity, characteristic flattening of nasal bridge from destruction of nasal bones.
10. Course very rapid, one to four months.
11. Responds promptly to anti-syphilitic treatment as a rule.
12. Frequently results fatally.

*After treatment.**a. Stimulating applications.*

(a) Solution of carbolic acid, five per cent., on cotton pledgets till inflammation subsides.

(b) Carbolic acid ointment.

(c) Balsam of Peru, $\mathfrak{z}\text{i}$ to $\mathfrak{z}\text{i}$ vaseline.

2. *Constitutional.* (1) *Alteratives and tonics.*

a. Cod-liver oil.

b. Syrup of iodide of iron.

c. Arsenic (*Hunt*).

FORMULA.—Caustic lotion (*Unna*).

R Hydrarg. bichlorid., one part;

Acid. carbol. vel

Creasote, four parts;

Alcoholis, twenty parts. **M.**

S.—Moisten a minute shred of absorbent cotton wrapped on a sharpened stick with lotion, and insert into small punctures made with lance, and allow to remain ten to fifteen minutes.

Diagnostic Table of Ulcers of the Nose.

	Rhinitis Atrophica.	Specific Rhinitis.	Tubercular Rhinitis.	Lupus of the Nose.
Site.....	Septum.	Septum.	1. Septum. 2. Floor. 3. Lower turbi- nated bone. 4. Middle turbi- nated bone.	Cartilaginous sep- tum.
Size.....	Small.	Large.	Small; no appar- ent loss of tissue.	Large; apparent gain of tissue.
Surface.....	Shallow.	Deep, excavating; covered with dirty-looking, yellow pus.	Shallow; covered with whitish- gray mucus, or thin, dirty-yel- low pus (<i>rare</i>).	Elevated; non- vascular, soft, covered with tenacious gray- ish or grayish- white mucus; centres of cica- trization.
Edges.....	Irregular.	Ragged, inverted, surrounded by bright red, glassy areola.	Irregular; no areola.	Irregular; no areola.
Crusts.....	Large; dry; brown, green, gray, or yellow.	Large, crater-like casts; black, necrotic, at times bloody.	Large; dry; brown.	Broad, flat, gran- ular; red or reddish-brown.
Discharge..	Mucous, or mu- co-purulent, scanty, thick, viscid, contain- ing scabs.	Muco-purulent, profuse, watery, acid, blood- tinged, contain- ing necrosed tissues.	Mucous, or muco- purulent, pro- fuse.	Sero-mucous, scanty, thin.
Odor.....	Musty, resem- bling crushed bed-bugs.	Intensely gan- grenous.	Slight or none.	Usually none; at times very of- fensive.
Deformlty..	None.	Flattening of nasal ridge.	None.	Great; destruc- tion of tissues of nose and mouth.
Age.....	Five to fifteen years.	Before fourth month.	Early youth and adolescence.	Third to twelfth year.
Frequency..	Very rare.	Common.	Rare.	Comparatively frequent.

2. *Chronic Nasal Stenosis.*

DERIVATION.—Στενός, narrow.

SYNONYME.—Chronic nasal obstruction.

DEFINITION.—A condition very common among children, in which there is an obstruction, more or less complete, of the nasal passages, arising from either a congenital or an acquired narrowing of the normal lumen, and giving rise to a train of symptoms varying in intensity with the degree of obstruction which may be present.

VARIETIES.—1. Unilateral (*rare*).

2. Bilateral.

ETIOLOGY.—1. *Congenital causes.*(1) *Narrowing of anterior third of lumen of nasal fossæ.*a. Membranous occlusion of anterior nares (*rare*) (*Littre*).b. Osseous occlusion of anterior nares (*very rare*) (*Jarvis, Potter*).

(Both incompatible with life).

(2) *Narrowing of middle third of lumen of nasal fossæ.*

a. Malformation of vomer.

b. Deflection or dislocation of vomer.

c. Malformation of turbinated bones.

(a) Hypertrophy of upper bone (*rare*).(b) Hypertrophy of inferior bone (*common*).

(c) Deviation in position of middle bone.

a. Inward, displacing septum.

β. Downward, into lower meatus.

γ. Inward and downward.

(d) Bladder-like development of middle bone (*Santorini*).

d. Malformation of ethmoid.

e. Deflection of perpendicular plate of ethmoid.

Hyperostosis of sutural line (*Harrison Allen*).f. Exostosis of perpendicular plate of ethmoid (*Loewenberg, Zuckerkandl*).g. Abnormal growth of ethmoid (*Zuckerkandl*).

h. Vertical incurvation and other deviations of bony septum.

i. Synechiæ of walls of nasal fossæ.

(a) Membranous } Complete } Congenital.

(b) Osseous } Incomplete } Acquired.

a. Traumatism.

β. Adhesions from pathological processes.

j. Bony excrescence into floor of nose from superior maxilla.

(3) *Narrowing of posterior third of lumen of nasal fossæ.*a. Malformations of naso-pharynx (*rare*).

b. Malformation of posterior nares.

(a) Occlusion of posterior nares.

a. Lateral	}	(Bitot, Cohen, Em- mart, Frænkel, Luschka, Otto, Plancus, Ræderer, Vicq d'Azyr, Vol- tolini, etc.).
β. Bilateral		

γ. Membranous (*Littre, Oberteuffer, Otto*).

δ. Osseous.

(1) Simple (*implication of orifice of posterior nares only*).(2) Complicated (*obliteration of entire nasal fossæ*) (*Rohowsky*).(b) Obliteration of the choanæ (*cyclopiæ monsters*) (*Borrechiæ, Plouquet, Sæmmering, Vrolik*).

- (c) Rudimentary choanæ (*Maigrot, Roloff*).
- (d) Fusion of choanæ (*associated with absence of vomer (Ræderer, Roloff)*).
- (e) Deflection of posterior edge of vomer (*very rare (Welcker, Ziem)*).
- (f) Vertical division of vomer (*Harrison Allen, Lefferts, Schrötter*).
- (g) Diminution in antero-posterior diameter of naso-pharynx.
- (h) Angular anterior curvature of upper cervical vertebræ (*Lennox Browne*).
- (4) Extreme degree of capacity of nasal chambers (*obstruction of patency*).

2. *Acquired causes.*

- (1) Upward growth and protection of eye-teeth.
- (2) Syphilitic growths of the naso-pharynx.
- (3) Lupus.
- (4) Mucous polypi.
- (5) Foreign bodies in the nostrils.
- (6) Fugitive hypertrophy of the nasal tissues.
- (7) Traumatism.

PATHOLOGY.—

1. *Macroscopic.*

- (1) *Nose.*
 - a. Mucous membrane inflamed, reddened, covered with flakes of thick, white mucus.
 - b. Lumen occluded more or less completely.
 - c. Septum, thickening of cartilaginous portion; occasional shallow ulcerations; localized exostoses of vomer.
 - d. Turbinated tissues thickened, inflamed, occasional shallow ulcerations.

SYMPTOMS.—

1. *Local.*

- (1) *Nose.*
 - a. Respiration occluded (*partial or complete*), noisy, snuffling, buccal; dyspnoea on exertion; attacks of suffocation; snoring during sleep.
 - b. Discharge profuse, mucous or muco-purulent, odorless (*usually*).
 - c. Anosmia complete.
 - d. Epistaxis slight or severe, frequent.
 - e. Nostrils excoriated.
 - f. Posterior nares, dragging sensation.
- (2) *Mouth.*
 - a. Open; expression dull.
 - b. Voice nasal; aphonia (*occasional*).
 - c. Cough frequent, dry.
 - d. Sense of taste impaired.
 - e. Lips excoriated; dribbling of saliva.
 - f. Cheeks flabby (*from elongation of naso-labial sulci*).
 - g. Lower jaw depressed.
 - h. Teeth prominent.
 - i. Gums fissured.
- (3) *Eyes.*
 - a. Conjunctivæ inflamed.
 - b. Lachrymation.
 - c. Inner canthi depressed (*Michel*).
 - d. Recurrent herpes.
 - e. Keratitis.
 - f. Dacrocystitis.
- (4) *Ears.*
 - a. Otalgia.
 - b. Tinnitus aurium.
 - c. Purulent otorrhœa.
 - d. Deafness.

- Due to*
- 1. *Extension of inflammation through nasal duct.*
 - 2. *Trophic changes.*
 - 3. *Vaso-motor changes.*

- Due to*
- 1. *Extension of inflammation through Eustachian tube.*
 - 2. *Trophic changes.*
 - 3. *Vaso-motor changes.*

2. *General.* { (1) Countenance pale.
 (2) Headache; fugitive neuralgias.
 (3) Insomnia partial; night terrors.
 (4) Mucous râles in chest few, small.
 (5) Emaciation considerable.

SEQUELÆ.—1. *Interference with nutrition, resulting in—*

- (1) Retarded growth.
 (2) Dyspepsia.

2. *Affection of respiratory tract.*

- (1) Asymmetry and imperfect development of nasal and accessory chambers (*Ziem*).
 (2) Inflammation of frontal sinuses.
 (3) Inflammation of ethmoidal cells.
 (4) Inflammation of sphenoidal cells.
 (5) Acute hyperæmia of lungs.
 (6) Emphysema of lungs.
 (7) Pulmonary consumption.
 (8) Deformities of chest wall.

3. *Aural.*

- (1) Chronic catarrhal otitis media.
 (2) Chronic otorrhœa.
 (3) Stricture of Eustachian tube.
 (4) Fatty degeneration of the tubal muscles.
 (5) Deafness.

4. *Ocular.*

- (1) Chronic inflammation of eyes.
 (2) Blindness, partial or complete (*occasional*).

DIAGNOSIS.—Plain. By inspection with rhinoscope.

PROGNOSIS.—Good, in general.

TREATMENT.—1. *Surgical.* (1) *Removal of projecting portions.*

- a.* By knife (*Dieffenbach*).
b. By scissors after dissection up of mucous membrane (*Heylen*).
c. Dissection of mucous membrane; removal of V-shaped piece; suturing of parts together (*Ingalls*).
d. By carpenter's chisel (*Heymann, Seiler*).
e. By punch (*Blandin, Bolton*).
f. By refracturing and replacing deflected septum, and wearing ivory plugs (*Adams*).
g. By other instruments.
 (*a*) Nasal burrs.
 (*b*) Nasal trephines.
 (*c*) Chisels.
 (*d*) Gauges.
 (*e*) Saws.

2. *General.* (1) *Tonics and alteratives.*

3. *Epistaxis.*

DERIVATION.—'Επιστάζω, I distil.

SYNONYMES.—

- | | |
|----------------------|---|
| 1. Nose-bleed. | 6. Hæmorrhagia narium. |
| 2. Rhinorrhagia. | 7. Epistaxis |
| 3. Hæmorrhinia. | 8. Saignement du nez } (<i>French</i>). |
| 4. Hæmorhinorrhagia. | 9. Nasenbluten (<i>German</i>). |
| 5. Choanorrhagia. | 10. Epistassi (<i>Italian</i>). |

DEFINITION.—A discharge of blood from the nasal passages varying in amount from a mere oozing to a very copious flow which may even threaten the life of the patient, occurring most frequently in males, and at times showing a strong hereditary feature.

ETIOLOGY.—1. *Predisposing causes.*

(1) *Adynamic or passive congestion.*

- a. Sedentary life.
- b. High feeding.
- c. Continence.
- d. Bodily fatigue.

(2) *Diseased conditions.*

- a. *Local.* (a) Erosions of nasal mucous membrane.
- (b) Ulcerations of nasal mucous membrane.
- (c) Necrosis of nasal bones and cartilages.
- (d) Tumors of the nasal fossæ.
- (e) Rhinoliths.
- (f) Nasal diphtheria.
- (g) Intranasal inflammation.

b. *Organic.* (a) Cardiac.

- (b) Pulmonary.
 - a. Pneumonia.
 - β. Fibroid induration.
 - γ. Tuberculosis.
 - δ. Emphysema.
 - θ. Pleuritis.
 - ι. Empyema.

(c) Hepatic.

(d) Splenic.

(e) Renal.

c. *Dyscrasic.*

- (a) Scurvy.
- (b) Purpura.
- (c) Leukæmia.
- (d) Malaria.
- (e) Uræmia.
- (f) Malignant fever.
- (g) Exanthemata (*when suppressed*).
- (h) Erysipelas.
- (i) Arthritic and gouty affections.

2. *Exciting causes.*

(1) *Local traumatism.*

- a. Scratching of nose.
- b. Contusions of nose.
- c. Fracture of nose.
- d. Cauterization of nose.
- e. Inhalation of irritating substances.
- f. Diminished atmospheric pressure.
- g. Exposure to cold.
- h. Exposure to immoderate heat.

(2) *Active or plethoric congestion.*

- a. Violent sneezing.
- b. Violent coughing.
- c. Violent blowing of nose.
- d. Violent exercise.
 - (a) Running.
 - (b) Jumping.
 - (c) Strain from lifting.

- e. Vomiting.
- f. Suppression of perspiration.
- g. Vicarious menstruation.
- h. Cerebral plethora.
 - (a) Intense cerebration.
 - (b) Mental emotions.
 - a. Anger.
 - β. Fright.
 - γ. Grief.
 - δ. Joy.
 - (c) Reflex.
 - a. Intestinal worms.
 - β. Masturbation.
 - γ. Coitus.

(3) *Idiosyncrasy.*

- a. Eating of certain articles.
 - (a) Butter, cheese (*Bartholin*).
- b. Inhalation of certain odors.
- c. Inhalation of certain powdered drugs.

PATHOLOGY.—

- | | | | |
|------------------------|---|------------------|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Nose.</i> | a. Mucous membrane intensely congested; color, bright red or purple; spots of ecchymosis; bleeding points: <ul style="list-style-type: none"> (a) On anterior portion of septum (<i>usual</i>). (b) On inferior turbinated body (<i>rare</i>). (c) On floor (<i>very rare</i>). |
|------------------------|---|------------------|--|

SYMPTOMS.—

- | | | | |
|--|---|---------------------|--|
| 1. <i>Congestive or Prodromal Stage</i>
(<i>motimina hæmorrhina</i>). | { | (1) <i>Local.</i> | a. <i>Nose.</i> (a) Respiration slightly obstructed. |
| | | | (b) Subjective sensations. <ul style="list-style-type: none"> a. Heat of nasal chambers. β. Dryness of nasal chambers. γ. Desire to blow nose. δ. Itching of nostrils. |
| | | (2) <i>General.</i> | b. <i>Eyes.</i> Conjunctivæ congested. |
| | | | c. <i>Ears.</i> Tinnitus aurium. |
| 2. <i>Stage of Hemorrhage. Duration, ten to twenty minutes or hours or days.</i> | { | (1) <i>Local.</i> | a. Headache, frontal, increased on pressure; temporal. |
| | | | b. Face and cheeks flushed; fullness and pulsation of vessels. |
| | | | c. Giddiness, vertigo. |
| | | | a. <i>Nose.</i> Discharge of blood, one or both nostrils; color, bright red (<i>arterial</i>), blue (<i>venous</i> ; in <i>passive congestion</i>). |

3. *Stage of Collapse* } (1) *General.* {
- a. Prostration, great.
 - b. Faintness.
 - c. Delirium.
 - d. Cardiac weakness; loss of pulse.
 - e. Death.
- (rare).

DIAGNOSIS.—Plain.

PROGNOSIS.—Good, usually. Dependent upon cause.

TREATMENT.—1. *Physiological.* (1) Position, sitting, head slightly forward.

- (2) Rest, absolute.
- (3) Respiration, oral.
- (4) Quieting of fears.

2. *Local.* (1) *Cold applications.*

- a. Compresses to forehead.
- b. Compresses to dorsum of nose.
- c. Compresses to nape of neck.
- d. Compresses to scrotum.
- e. Key to cervical region.
- f. Cloth moistened with ether to dorsum of nose (*Voillemier*).
- g. Snuffing of ice-water.
- h. Lumps of ice in nostrils.

(2) *Warm applications.*

- a. Chapman's hot-water bag to neck.
- b. Strong mustard plaster.
 - (a) To epigastrium.
 - (b) To calves of leg.

(3) *Astringent applications.*

a. *Insufflations.*

- (a) Powdered tannic acid.
- (b) Powdered kino.
- (c) Powdered catechu.

b. *Sprays.*

- (a) Cocaine, two- to five-per-cent. solution.
- (b) Perchloride of iron, $\mathfrak{z}\text{ii}$ to $\mathfrak{z}\text{iv}$ water.
- (c) Liquor ferri subsulphatis.
- (d) Acetate of lead.
- (e) Alum.
- (f) Tannic acid, $\mathfrak{z}\text{ii}$ to $\mathfrak{z}\text{iv}$ water.

(g) Gallic acid.

(h) Decoction of matico (*Ellis*).

c. *Astringent plugs.*

- (a) Solution of ergotin on charpie.
- (b) Dust with iodoform, and plug with tannic acid gauze (*Ingalls*).

3 *Constitutional.* (1) *Astringents.*

- a. Ergot.
- b. Turpentine.
- c. Tincture of ferric chloride.

(2) *Sedatives.*

- a. Tincture of aconite root (small, frequent doses. *Ringer*).
- b. Potassium bromide.

(3) *Antiperiodics (in periodic hemorrhage).*

a. Quinine.

b. Arsenic.

4. *Surgical.* (1) Compression of bleeding nostril.
(2) Application of galvano-cautery.
(3) Deligation of upper and lower extremities (*in obstinate cases*).
(4) Plugging of posterior nares (*rarely required*).

(To be continued.)

Clinical Memoranda.

NOTES OF A POST-GRADUATE DEMONSTRATION ON THE EARLY DIAGNOSIS AND TREATMENT OF JOINT-DISEASE, GIVEN AT THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET, LONDON, BY MR. EDMUND OWEN, THE SENIOR SURGEON.

IT is hardly necessary to say that the joint-disease referred to is inflammation,—synovitis or arthritis, simple or tubercular. The adage, *rubor, tumor cum calore et dolore*, should not be forgotten; though, of course, if the inflammation be in a joint deeply placed and thickly covered, as in the case of the hip and shoulder, there may be no sympathetic dilatation in the vessels of the skin, and, therefore, neither redness nor heat of the surface. Still, even in early disease of these joints, the *tumor* may be detected as an obscure fulness by gently compressing the capsule from before and from behind, and then comparing with the other side. So, also, with the elbow, only in that instance some bulging could generally be made out at the most subcutaneous part of the joint,—that is, around the head of the radius,—and, moreover, by effusion beneath the anconeus and on either side of the insertion of the triceps. In the cases of the knee, ankle, and wrist the effusion caused a bulging wherever the distended synovial membrane could approach towards the surface. For the sake of comparison, certain cases were placed side by side: first, one of thickening of and effusion into the synovial membrane of the knee, and one of inflammation at the layer of cartilage between the diaphysis and the upper epiphysis of the tibia. At first sight each looked like an instance of knee-joint disease, but, on examination, the articular affection showed a bulging above and on either side of the knee-cap, while in the epiphyseal case the swelling was entirely limited to the region of the head of the tibia, the only depressions which were effaced being those which naturally exist at the sides of the ligamentum patellæ. A plaster cast was shown of a typical example of effusion into the ankle-joint, and comparison was then instituted with

a child's foot in which effusion was taking its starting-point from disease of the synovial membrane of the astragalo-scapoid joint, the ankle-joint itself being unaffected, as was evidenced by the persistence of the natural depressions around the malleoli. By the side of this case was also shown a swelling which was precisely limited to the region of the os calcis of a child whose heel had been struck by a stone. Heat over the region of a superficially-placed joint was a very important and early sign of articular trouble. Too much attention must not be paid to the *et dolore* element. The framer of the adage had wisely and suggestively placed the *dolor* last, recognizing it as a subjective and, therefore, to the practitioner, inappreciable sign.

In addition to the four classical signs of inflammation thus given, Mr. Owen added two others, which were of great value when a joint was the site of the inflammation. They are *wasting of the muscles of the limb* and *impairment of function of the joint*. The mother of one of the children, then present, had particularly directed attention to the fact that in the case of an inflamed knee-joint the thigh was "withered." That the muscular wasting is not due simply to the child not using the limb is evidenced by the fact that when a patient is promptly placed in bed on account of knee-joint disease, say of the right side, the wasting is confined to the muscles of that limb; that though he practically does not use the left limb, still its muscles remain in fair development. The explanation of the wasting was probably after this manner: The physiological activity of the muscles is under the control of certain large bipolar cells in the anterior cornu of the gray crescent of the cord. These cells also control the nutrition of the muscles as well as the bones and joints. When a joint is inflamed, afferent nerves convey to the gray matter of the cord clinical information of trouble. In due course this intelligence is conveyed to the bipolar cells, which, by their trophic influence, and in their endeavor to insure rest for the articulation, starve the muscle acting upon it into abject and complete submission. Attention was directed to the great value of impairment of function as an early sign of joint-disease. The function of a diarthrodial joint is movement, and when its synovial membrane is inflamed, not only is the range of movement at once diminished, but for reasons explained, the joint begins to assume some fixed and faulty attitude. Impairment of function as a sign of disease was of the greatest value, and especially so in the case of the hip and shoulder. It would be at once noticed in the child (then under examination) that when the humerus on the side of her inflamed shoulder-joint was

but slightly abducted, the angle of the scapula at once began to move with the arm. Next to this child came a boy whose thighs were fixed, and whose loins were arched in the manner suggestive of hip-joint disease, but he permitted the head of each femur to be rotated in its acetabulum. The simulation of joint-disease was due to central nervous irritation,—there was certainly no articular inflammation.

As regards the treatment of early joint-disease in children, the cue might be taken from the action of those bipolar cells. They insisted on *rest*,—the more thorough the rest the more effectual is the surgeon's treatment. Unfortunately, the practitioner not infrequently has a very lax notion of the great value and need of rest, and he lets a child walk or crawl about whose case demanded absolute confinement to bed,—at least for a while.

At the conclusion of the demonstration the various joints were examined by those present, and Mr. W. F. Brook, the house-surgeon, showed with what ease, accuracy, and comfort plaster of Paris and house-flannel could be employed in the treatment of diseased joints.

STATISTICS OF INTUBATION.

Under	1 yr.,	10 cases, with	3 recoveries, or	30.00 per cent.
Between 1 and 2 yrs.,	45	"	11	"
" 2 " 3 "	55	"	12	"
" 3 " 4 "	58	"	21	"
" 4 " 5 "	71	"	30	"
" 5 " 6 "	34	"	18	"
" 6 " 7 "	21	"	7	"
" 7 " 8 "	22	"	10	"
" 8 " 9 "	9	"	5	"
" 9 " 10 "	6	"	3	"
" 10 "	5	"	2	"
Aged 12 "	2	"	0	"
" 13 "	1	"	0	"
" 14 "	1	"	0	"
" 20 "	1	"	0	"
" 42 "	1	"	1	"
" 60 "	1	"	0	"
	343		123	35.85

First	100 cases, 27 recoveries, or 27.	per cent.
Second	100 " 34	" "
Third	100 " 42	" "
Last	43 " 18	" "
	41.85	" "

F. E. WAXHAM, M.D.

CHICAGO, ILL., June 5, 1891.

RETENTION OF URINE.

IN a case of retention of urine in a boy, ten years of age, who had been under treatment nine days for relief of an obstruction of the bowels caused by fæcal impaction in the cæcum, I found it impossible to practise catheterization, on account of the extreme timidity of the patient; and attempting chloroform anæsthesia, was forced to desist, as he ceased breathing on the slightest approach of insensibility. Having a four-per-cent. solution of cocaine with me, I injected forty minims into the urethra, compressing the meatus for about five minutes, and then requesting him to make an effort at micturition; he did so with perfect ease, and at each subsequent requirement the same proceeding was employed, until the necessity for its use was overcome. Its use produced no unpleasant effects, and it proved a happy factor in overcoming a very troublesome complication. As no opium was being used in the treatment, the retention was plainly from reflex irritation, causing spasm in the membranous portion of the tract.

GEORGE C. IRWIN, M.D.

SABETHA, KAN., May 20, 1891.

 Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

Bacteriological Researches on the Saliva of Children who were attacked with Measles—Hereditary Syphilis with Serious Ocular Symptoms in a Child of Five Months cured by Hypodermic Injections of a Solution of Corrosive Sublimate—Sea-side Sanitariums for Children—On Sterilization and Conservation of Milk—Treatment of Tubercular Peritonitis by Laparotomy—Treatment of Broncho-Pneumonia of Infants by Hypodermic Injections of Hydrochlorate of Quinine—Abdominal Massage for Constipation in Infants—Infantile Hygiene on the Niger.

Bacteriological researches on the saliva of children who were attacked with measles.—The results of these researches, made by MM. Méry and Bouloche,* in the laboratory attached to the Faculty of Paris (Hygiene Department), are interesting. It would seem that the pneumococcus and streptococcus are found in quantities in children's saliva who have measles.

* Published in *Revue des Mal. de l'Enfance*, Paris, April, 1891, p. 154-168.

The proportion is about fifty per cent. more than normal,—that is, more than half of the children who have measles have the pathological microbes. It is true that some of them are found in healthy saliva (about one in five for the pneumococcus and one in eighteen for the streptococcus), what follows is therefore important. It seems that when the broncho-pulmonary symptoms set in during measles all the children's saliva contained both the pneumococcus and the streptococcus, and on making an autopsy of some of the fatal cases, they could be followed down into the respiratory tract as far as the smallest bronchial tubes. This would seem to explain the frequency of broncho-pulmonary complications in measles and the therapeutic indication that follows is to make a careful buccal antiseptic, by ordering washing out of the mouth during measles with some antiseptic liquid.

As broncho-pulmonary complications are the most frequent cause of death in measles, the smallest precautions are important. It has been supposed for many years that this complication was only a local determination or localization of the exanthemata itself, but bacteriology shows that the presence of the pathological germs is necessary. It is probable that measles make a favorable ground for the development of these microbes, but even admitting this predisposition, it seems important to study the production of the germs themselves, and the means of preventing their evolution in children attacked by measles. It is more than probable that they enter the body by the mouth, and the saliva offers a means of development, owing to the alkaline nature of this liquid that is extremely favorable. This study then (by the authors of the article) was made on forty-eight children, in the Trousseau Hospital, and gave the results we give above.

Hereditary syphilis with serious ocular symptoms in a child of five months cured by hypodermic injections of a solution of corrosive sublimate.—This interesting case was seen at Dr. Abadiés's eye clinic. It seems the child was treated for two months and a half by the *internal* administration of Van-Swieten's solution and rubbing with blue ointment, without the slightest result. On the contrary, the parents noticed that it could no longer see. Around the anus it was covered with mucous plaques, and various skin symptoms of syphilis existed. The following was ordered :

R Hydrarg. bichlor., .25 gramme ;
Sodium chlor., .50 gramme ;
Water, 25 grammes.

Sig.—Every other day injection of three divisions of the hypodermic syringe in gluteal muscles.

Cure followed in a month.

Sea-side sanitariums for children.—The French are still very anxious about the manifest *depopulation* of their country, and they are seeking by every means in their power to remedy this non-increase in population. The French are not prolific, or at least do not wish to have children, which amounts to the same thing; so, not being able to make their people have more children, they are seeking to prevent the death-rate being so high in those that are born. One of the most effective ways of preventing infant mortality is the establishment of *marine hospitals* to bring up weak and lymphatico-anæmic children. This system of having maritime sanitariums for children has been carried out in Italy, where the sea-coast is dotted all along by these hospital homes for children, and in the success of such institutions there has been something wonderful. The French are now following the Italian system, and have lately established two more of these sea-side homes for children. The sea-air is known to act in a powerful manner on weakened human organisms, and sea-water is almost as good, if not better, in the cure of weakly children. Six to eight weeks is considered enough for a child to pass at the sea-side every year, except in severe cases, where they must remain for months at a time. There are certain indications to follow in choosing a site as to climate, winds, and, above all, sandy beach with *plenty of sea-weed* thrown up. Besides this, it is essential that the treatment shall not be conducted in the usual hap-hazard way that is practised at sea-side places as they now exist, which consists in giving all the children a cold sea-bath; on the contrary, a scientific physician must be attached to the sanitarium at the sea-side, and hot, or at least warm, baths be given as needed, according to season and to the patient's wants, this to be combined with *massage*, gymnastics, and the medicinal treatment required. Isolation-rooms must be provided for certain patients, and the food regimen is an important question that must be studied as to each case. About two hundred to three hundred yards from the beach is considered the best place for the buildings, and a three-months' treatment would be best for many patients. The immense sea-board of the United States would seem to have some splendid spots for these children's sanitariums.

On sterilization and conservation of milk.—This is always an interesting question in a children's journal, and has just been treated upon by Dr. Le Gendre* and M. Gautrelet, an

* Le Gendre, in *Revue d'Obstetrique et Hygiene de l'Enfance*, Paris, February, 1891.

able chemist.* The first author says that the question of the transmission of certain maladies by milk, and the best means of preserving children from that danger, is the most interesting subject in infantile hygiene. Milk may be dangerous, whether taken from a healthy cow or a diseased one. It is pretty well established that ten per cent. of animals that are killed for food are tubercular. This was proved in the slaughter-houses, both in Germany and France, and of course the animals brought for food did not present any external sign of the disease. This being so, it is agreed that *all milk must be boiled*. As to other maladies transmitted by milk, we have quite a number of them that are too well known to repeat. The various methods used by milk-producers to keep milk are interesting. As to the alkalines, such as carbonate and bicarbonate of soda, they do not stop the development of microbes to any extent. Salicylates are used, but are dangerous. Boric acid is considered less dangerous, because animals have been made to swallow lots of it without danger, but to reason from this to children will not do any more than it would to give them plenty of dangerous plants in their food, under the pretext that animals eat them without danger. Lime-water is not sure to prevent milk from being infected. Cold, or even freezing, does not destroy microbes, and we return again to heat, which seems to have an instantaneous effect. Boiling the milk in the open air is not safe, so that the most simple as well as the best method is to take small, plain bottles (without corks), fill them with milk, and simply stop the mouths with a little *sterilized cotton*. Any gas forming in the bottles can thus escape during the boiling, and the milk is preserved from the air, which can only enter filtered through the cotton. Boiled thus in narrow-necked bottles, the scum that is formed in open vessels is prevented from forming, and milk thus prepared will keep for weeks, but it is best not to prepare more than enough for two days at most.

The physico-chemical researches made by M. Gautrelet were undertaken by a commission of the *Société de Médecine Pratique* some eighteen months ago. The idea was to study the best means of alimentation for infants outside of mother's milk. Woman's milk was first taken up and its composition defined, and its difference with the female's milk of animals compared. Then the conservation of milk and its sterilization, etc. The matter is gone into great detail, and the practical outcome is that after woman's milk, ass's is best, and goat's contains a considerable excess of gas, and would, therefore, be suitable to children who have atony of the stomach.

* Gautrelet, in *Bulletin de la Société de Médecine Pratique*, Paris, April 1, 1891.

As to alimentation with cow's milk, the following rules are given. Choose a milk that has about sixty grammes of butter per quart, add half water to it, and add also twenty-five grammes of lactose, then boil it before using it.

Treatment of tubercular peritonitis by laparotomy.—Not to neglect the surgical department, we will just mention the above operation, which has been done again, lately, with success. König presented to the last International Congress at Berlin a statistical table of one hundred and thirty-one cases. The mortality was three per cent., eighty-four cures, and twenty-three cases improved. The cures obtained were lasting, as some had been followed up for twelve years. The operation simply consists in a large opening made in the belly and evacuation of the liquid under the usual precautions. The case mentioned above was a little girl of three years of age, and cure resulted. The results are so good that it must be admitted that laparotomy is one of the best methods of treatment in peritoneal tuberculosis in infants.

Treatment of broncho-pneumonia of infants by hypodermic injections of hydrochlorate of quinine.—Dr. St. Phillipe, of Bordeaux, commends this treatment and gives this formula :

R Hydrochlorate quiniæ, 2 to 4 grammes ;
Glycerin,
Aqua, aa 10 grammes. M.

twenty-hundredths to forty-hundredths centigramme may be used for each infection. It should be warmed, if the weather is cold, as it is apt to get thick.

Abdominal massage for constipation in infants.—The *Gazette Méd. de Liège*, November 14, 1890, gives the following conclusions, by Dr. Karnitzky :

1. Abdominal massage produces as great results as purgatives.
2. Constipation is easily cured by it without drugs.
3. The younger the child the more readily it can be cured.
4. In young infants the manipulations must be gentle.
5. From three to ten minutes massage according to age as required.

Infantile hygiene on the Niger.—Captain Boriger, the French traveller (in *Tour du Monde*, February 21, 1891), relates a singular habit of the women on the borders of the Niger. It seems they take the children on their knees and force them to swallow a large calabash of water, no matter how they cry, then, turning them rapidly, they use their mouths as a canula and force water up the little one's rectum, which it rejects. This is kept up for some time both by the mouth and rectum until about four quarts of water in all is used. This original method of internal washing does not seem to hurt the infant.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Richards: The Dose of Antifebrin for Children. (*British Medical Journal*, May 16, 1891.)

The author reports three cases in which antifebrin was administered to children, but gives no definite rules for its use. The first was eight years old. The first dose of three grains produced a greater effect than was desired. Doses of one and a half grains were followed by most satisfactory results. In the second case, a child four years old, with a temperature of 102.4°, a dose of three grains produced a satisfactory and not excessive result. An infant of nine months, scalded over the chest and arms, with the temperature ranging high, was but little effected by doses of half a grain repeated in four hours.

The following chart shows the action of the drug in the first case :

Date.	Hour.	Temperature.	Dose.	TEMPERATURE AFTER ANTIFEBRIN.					
				One Hour.	Two Hours.	Four Hours.	Six Hours.	Eight Hours.	Ten Hours.
March 22..	6 P.M.	104.6°	3 grs.	.....	103.2	98.6	97.0	100.0	104.4
" 29..	2 A.M.	104.8°	1½ "	101.2	99.0	99.4	100.0	101.4	102.6
" 29..	10 P.M.	104.2°	1½ "	100.6	97.0	96.8	100.6	104.4	.....
" 30..	6 P.M.	104.2°	1½ "	100.8	98.4	100.2	.....	104.2	.....
April 1..	2 A.M.	105.2°	1½ "	100.0	98.2	99.0	.....	104.8	.....
" 1..	10 P.M.	104.4°	1½ "	101.0	98.0	99.0	.....	103.2	.....

Troitzky: Irrigation of the Stomach of Small Children for Therapeutic Purposes. (*Arch. f. Kinderh.*, Bd. xii. 5, 6.)

The following are the conclusions.

1. Irrigation of the stomach is a valuable agent for the treatment of beginning disorders of the stomach and intestines, if used at the proper time. It may prevent their transformation into severe or dangerous conditions. The favorable results to be obtained are the more evident the earlier in the history of the disease this treatment is undertaken.

2. The most favorable cases for cure by this means of treat-

ment alone are the dyspepsias which are unattended by fever, the gastric form will yield most readily, the mixed gastric and intestinal form less readily, and the intestinal form least readily. The chronic forms of dyspepsia yield to this treatment less readily than the acute, and the different varieties yield in the same order as mentioned for the acute forms.

3. Irrigation is also useful for the quickly-developing disorders of the stomach and bowels, for example, the specific form of diarrhœa. But it should be used in conjunction with other therapeutic means.

4. The subacute and chronic disorders of the stomach and bowels may gradually be overcome if, with the irrigation of the stomach and the internal medication, careful efforts are observed to strengthen the system at large.

A. F. C.

Demme: Antipyretics in Infantile Therapeutics. (*La Cronica Med.*, February 20, 1891.)

The author's investigations were made in the hospital at Bern. From these it was deduced that in temperatures from 38.5° C. to 39.5° C. of brief duration there is no indication for the use of antipyretics. For such conditions cold packs are preferable, and if there is insomnia and restlessness, baths at 25° C. to 28° C. for five or ten minutes should be given twice daily. The elevated temperatures are those which call for particular attention, though one must also take into consideration their cause, and the resisting power of the patient. In typhoid fever, acute rheumatism, and broncho-pneumonia they fill an important indication, but not in diphtheria, the exanthemata, or fibrinous pneumonia. It is not advisable to combine the use of antipyretics and cold baths; with the former warm baths should be used. In cases in which there is cyanosis the warm bath may be used and cold affusions to the head and nucha. If the digestive tract is tolerant, one may use salicylate of soda internally, but salol should be used if there is a tendency to vomiting and diarrhœa. Of the former, half a gramme to a gramme may be given to children two to four years of age, one to two grammes to those of five to ten years, two to three grammes from eleven to fifteen years. Of salol, twenty-five to thirty centigrammes may be given three times daily to children of two to four years, fifty to seventy-five centigrammes three or four times daily to those of five to ten years, seventy-five to one hundred centigrammes three or four times daily to those of eleven to fifteen years. Thalline has been used by the author with good results, but it will sometimes produce collapse. In broncho-pneumonia the use of antipyrin in an aromatic solution with a small

quantity of alcohol is recommended, provided it does not produce digestive disturbance. The dosage is twenty to forty centigrammes every hour for the ages two to four, fifty to seventy-five centigrammes from five to ten, seventy-five to one hundred centigrammes from eleven to fifteen. Should hectic fever supervene in the course of a broncho-pneumonia, quinine should be substituted for antipyrin.

A. F. C.

Dehenne: The Prophylaxis of Blindness from Ophthalmia in the New-Born. (*Journ. de Méd.*, March 15, 1891.)

Notwithstanding the great advances which have recently been made in public hygiene, ophthalmia in the new-born still makes extensive ravages. Of one hundred blind persons, at least forty-five have lost their sight from ophthalmia neonatorum. Of one hundred children who suffer with purulent ophthalmia at the time of birth, thirty-five to forty remain irremediably blind. Almost all countries have taken this question into serious consideration. In France it has been seriously studied by Fienzal, Galezowski, Brière, and others, but their words have as yet called forth no response. It has been amply demonstrated—

1. That every case of ophthalmia of the new-born is a serious affection and should be treated as such.

2. That in all hospitals or other places where women are received as parturients ophthalmia in the new-born tends to disappear, provided rigorous antiseptic precautions are taken before and during parturition.

3. That every case of purulent ophthalmia which is properly treated ought to recover.

It was only in 1875 that the practice was instituted of observing antiseptic precautions upon the person of a woman at the time of her accouchement. One must believe that prophylactic and therapeutic means are still very imperfectly used, since statistics show that the number of cases of blindness from ophthalmia neonatorum is still so large. As preventive means, the author recommends Crédé's method of dropping one drop of a two-per-cent. solution of nitrate of silver into each eye of the infant immediately after birth, and in connection with this the eyes should be washed with a one to two thousand solution of sublimate. Vaginal injections and good hygiene for the mother prior to parturition must also be insisted upon.

If the lids are swollen they should be covered with pledgets of absorbent cotton moistened with iced water. This should be continued as long as the swelling remains. Or the lids

may be cleansed every hour by means of pledgets of absorbent cotton moistened with Van Swieten's solution. Or, one should instil into each eye, morning and evening, four or five drops of the following solution :

R Sulph. neutral eserini, .10 gramme ;
Aqueæ destil., 20 grammes.

Or, the conjunctival surface of the lid may be touched daily with a one to fifty solution of nitrate of silver. Strong solutions should not be used if one would avoid the production of scars upon the conjunctiva. Such scars cause desquamation of the epithelial surface of the cornea and open the gate for infiltration of the membrane with streptococci and gonococci, which may be proliferating in the conjunctival culs-de-sac.

A. F. C.

Karnitzky : Abdominal Massage in the Treatment of Constipation in Children. (*Journ. de Méd.*, March 15, 1891.)

This method of treatment was used by the author in twelve cases of chronic and twelve cases of acute constipation in children from eight to eleven years of age. The following are the author's conclusions :

1. Abdominal massage may produce effects upon the alimentary tract, in connection with digestion, which are not inferior to those produced by purgatives.

2. Habitual constipation may be easily cured by massage without the aid of purgatives.

3. The younger a child is the more readily can the constipation be cured.

4. The younger a child is the milder should the manipulations be, and the shorter the *séances*.

5. The duration of the *séances* should be from three to ten minutes according to the age of the patient. Longer *séances* are inadvisable, and may even be harmful and aggravate the condition of the patient.

6. Abdominal massage may be regarded as the best means of treating constipation in children. Purgatives should only be used in exceptional cases.

A. F. C.

Combemale : The Value of Camphoric Acid as an Antidiaphoretic. (*Journ. de Méd.*, March 1, 1891.)

Three agents have heretofore been principally used in the treatment of night-sweats, namely, white agaric, phosphate of lime, and atropine. Astringents, including amanita mus-

caria and Cohnheim's powder, which consists of salicylic acid and silicate of magnesia, have also been used, but without satisfactory results. Camphoric acid, which has recently been used in Germany, has not the great disadvantage of atropine of causing phenomena of delirium, nor, like agaric, does it produce free purgation. It will diminish, almost with certainty, the exaggerated functional action of the sweat-glands. The drug has been experimented with successfully on the persons of thirteen phthisical patients who were suffering with night-sweats. Dreesman has concluded, as the result of his experience with this agent among the tuberculous, that it does not act through the medium of the central nervous system, but by immediate destruction of the soluble products of the bacillus tuberculosis. It is these products, in his opinion, which cause habitual profuse perspiration in the condition of pulmonary ulceration.

A. F. C.

Sattler: New Method of treating Granular Conjunctivitis in Children. (*Journ. de Méd.*, March 1, 1891.)

The method consists in everting the upper lid, as is usually done, and then by means of a special form of forceps seizing it so as to completely disclose the conjunctival 'cul-de-sac'. The mucous membrane should then be deeply scarified, after which the submucous tissue should be thoroughly curetted in order to remove all colonies of microbes which may be there. The wound is then to be washed with a one to five hundred solution of sublimate.

Abadie has used this method in many cases with excellent results. In place of a steel curette he employs a nail-brush with very short and stiff bristles. The mucous membrane having been lacerated, he then rubs it briskly with the brush dipped in the one to five hundred solution of sublimate. For a few days afterwards he subjects the lids to eversion and washing with the sublimate solution. Many cases were cured by this method which had long been treated unsuccessfully with cauterizations of sulphate of copper.

Trousseau, in criticising this method, fears that the curetting might be followed by entropion and trichiasis with retractile scars.

A. F. C.

Leroux: Antipyrin in Chorea. (*Journ. de Méd.*, March 1, 1891.)

The author draws his conclusions, as follows, from an analysis of sixty cases:

1. Antipyrin exerts a favorable influence in Sydenham's chorea, diminishing its intensity and shortening its duration.

Such a result was observed in forty-one of the author's sixty cases.

2. Recurrences and recrudescences occurred in thirty-six of the sixty cases notwithstanding the use of antipyrin.

3. Antipyrin should be given in large doses, from three to six grammes, according to age and intensity. Treatment may be begun with small doses, but they may be rapidly increased.

4. Children from five to fifteen years of age readily tolerate large doses of this drug, even though they be continued several weeks.

5. In none of the author's cases were there severe toxic effects. Cutaneous eruptions and digestive troubles of short duration occasionally occurred, but after suspending the drug for a short time its use could be resumed without difficulty. There was no albuminuria, the urine was normal, and its elimination natural. Eruptions occurred in sixteen cases, including general scarlatinal erythema with buccal and pharyngeal enanthesis, roseola with œdema of the face, hands, and feet, without albuminuria, exudative polymorphous erythema of the face, and the buccal mucous membrane. These eruptions recurred with renewed use of the antipyrin. A. F. C.

Moncorvo : Treatment of Diarrhœa in Children with Salol. (*Journ. de Méd.*, March 1, 1891.)

The following are the author's conclusions upon this subject :

Salol is a valuable agent for the production of intestinal antiseptics in children of any age when suffering from enteritis or entero-colitis of malarial origin. Under the influence of this drug the intestinal flux diminishes and finally disappears, and the deodorizing influence is manifested almost as soon as the administration of the drug is commenced. The gases which result from intestinal fermentation are not produced when salol exercises its antiseptic action. Colic and vomiting also disappear after a short time. The stomach is very tolerant of this remedy, even in very young children, and no toxic phenomena have been observed.

The dosage should vary from fifteen centigrammes to two grammes in the twenty-four hours according to the age and severity of each case.

A. F. C.

II.—MEDICINE.

Coldstream: Diphtheria of the Vulva. (*British Medical Journal*, May 9, 1891.)

The patient was twelve years of age, and presented extensive diphtheritic membranes on both labia majora, with marked constitutional symptoms. The throat was not involved at any time. There was no paralysis, but the heart's action was feeble for a long time.

Ashby: Endocarditis and Chorea. (*British Medical Journal*, April 25, 1891.)

The specimen presented by Dr. Ashby was one of endocarditis from a fatal case of chorea in a girl of ten years. She had never had rheumatism, and the fatal attack was the first. The first illness was tonsillitis, which was attributed to bad drainage. Other members of the family had the disease at the same time. Choreic symptoms began two weeks later, the movements becoming so severe as to interfere with sleep and eating. Death resulted from exhaustion after an illness of five weeks.

Upon autopsy, endocarditis of the mitral valves was found. There was no pericarditis; the right parotid was much swollen, and there was extensive pneumonia of the right lung. There was a doubtful patch of meningitis on the convex surface of the brain. It would appear that the chorea was symptomatic of some grave blood-change.

Carslaw: Rheumatism and Chorea as Complications of Scarlet Fever. (*Glasgow Medical Journal*, May, 1891.)

In discussing the theory of the connection between scarlet fever and inflammatory conditions of the joints, the author quotes from Eustice Smith, Cheadle, Ashby, and Henoch in illustration of various opinions as to its nature. Excluding all cases admitted after the eighth day of illness, and also those which died before the end of the first week, 533 cases of scarlet fever are reported. Of these, no less than 62 showed at one stage or another of their illness some joint-affection or some involvement of the heart. Analysis of these 62 cases revealed the following facts:

Sex.—Of 214 males, 19 had rheumatic affection = 8.0 per cent.

Of 319 females, 48 " " " = 13.5 " "

Age.—Only one patient under three years had any articular affection.

Between 1 and 5 years, 13 rheumatic cases out of 193 = 6.7 per cent.

" 6 " 10 " 18 " " " 186 = 9.7 " "

" 11 " 15 " 12 " " " 84 = 14.3 " "

" 16 " 20 " 7 " " " 38 = 18.4 " "

Above 20 " 12 " " " 32 = 37.5 " "

The preponderance of female cases over male, and the increasing preponderance of females as we pass from childhood to adult life corresponds with Gresswell's statistics. So does the increasing proportion of all cases affected with scarlatinal rheumatism as age advances, and this is quite in keeping, too, with the statistics of rheumatism as a separate disease. So also does the preponderance of female cases in the patients below fifteen years tally with the facts of rheumatism alone, though after that age ordinary rheumatism becomes as common among males as among females, whereas in the case of scarlatinal rheumatism the female proclivity continues.

In thirteen of these cases the attack of scarlatina was slight, in thirty-three moderate, and in fourteen severe. This shows that no attack of scarlatina is free from the possibility of rheumatism.

An important point is the exact stage of the scarlet fever at which the joint-affection begins. This is generally regarded as the end of the first or the beginning of the second week, and the author's observations confirm this impression. In only five of the sixty-two cases was the onset after the second week; in thirteen cases it was between the ninth and thirteenth day; in forty-three it was not later than the eighth day; and in thirty-four it was between the fifth and seventh. In one case rheumatism began at the very beginning of the scarlatinal attack, and a few days later there was evidence of mitral disease. The end of the first week, then, is by far the most frequent time for the onset of this complication, and the fifth, sixth, and seventh are the favorite days. This is just the period when the temperature is reaching the normal, the rash disappearing, and desquamation about to begin. The skin has been warm and uncomfortable from perspiration; the patient has perhaps been restless, the arms are thrown out from beneath the bedclothes, and there is thus a possible harmful exposure to cold. That this has some influence in inducing rheumatism would seem to be borne out by the fact that of all the joints, the wrists and joints of the hands suffer most.

Prognosis in scarlatinal rheumatism is generally favorable. Suppuration occurs only in exceptional cases.

In three cases seen by the author chorea developed after the eruptive stage was quite over. The patients were girls, the ages being thirteen, seven, and three and a half, respectively. In one there was no rheumatism, but there was endocarditis; in another there was chorea and rheumatism without heart-affection, while in a third there was practically everything. It may make the fact of the rarity of chorea after scarlet fever even more striking to mention that these were the only

cases occurring in the Belvidere Fever Hospital during a period of two years.

Neumann: Reducing Substances in the Urine of Children. (*Arch. f. Kinderh.*, xii. 5, 6.)

1. Urine passed by children contains reducing substances in all cases. It may be in very small quantity with some, but it is sufficient for determination.

2. Carbohydrates are present in the urine of children.

3. Under certain pathological conditions the quantity of reducing substances may be increased. This is especially the case with severe forms of digestive disorders and nerve-diseases.

4. The same disease-phenomena which with adults are associated with diabetes appear in children in connection with an increase in the quantity of reducing substances. A. F. C.

Broca: Treatment of Hydrocephalus. (*Rev. Mens. des Mal. de l'Enf.*, March, 1891.)

There are some cases of this disease in which surgery is powerless. Thus, when one finds post mortem that a subject had tubercle or a neoplasm of any kind in the cerebellum, or the cerebrum, which, by compression, had caused an effusion of fluid, it is certain that no surgical procedure would have been of any benefit whatsoever. The external cause of pressure might be removed and the symptoms be relieved for a time, but the initial cause would remain. There are cases, however, in which so serious a cause is not present, and which under previous conditions of surgery have been looked upon as hopeless. At the present time it is believed that for some of these cases relief can be obtained by the evacuation of the intracranial fluid. A cure may not result, but improvement may occur. Such a result might be hoped for in cases in which the condition was of syphilitic origin. Before the antiseptic era the results of puncture in these cases were bad. One was afraid to trephine, and if a trocar were used it was more than likely to be septic, and in a few days the result would be death from suppurative meningitis.

At the present time the cranium, the meninges, and the brain itself all show extreme tolerance to aseptic instruments, and Keen has proposed measures for the drainage of the cerebral ventricles. Clinical and anatomical investigations have led Keen to the conclusion that the surest way of entrance to the distended lateral ventricle and the best track for drainage was by a lateral opening, the crown of the trephine being applied three centimetres behind and three centimetres above the external auditory meatus. The brain should then be

perforated by the trocar, the latter entering from three to six centimetres above the external auditory meatus and penetrating directly to the ventricle. No injury would be done by such a wound to any vital portion of the brain. Keen has thus operated in three cases, Mayo Robson in two, and Thiriar in one. The author has also found the method one of extreme ease and rapidity. The ventricle should not be at once emptied, but progressively, and Keen recommends the use of a horse-hair drain. The brain will bear such an injury, and the drain may be left in position several days. Keen even advises irrigation of the track and the ventricles with boiled water, and in one case after an interval of several days trephined on the opposite side of the skull, put in a drain, and established thorough drainage. The patients died, but there was no evidence of inflammatory reaction about the wounds. The principal danger in all the recorded cases seems to have been from the too rapid evacuation of the cephalo-rhachidian fluid. In the first of Keen's cases death did not occur until the forty-fifth day, and then was attributable to a tumor of the cerebellum. In another case death followed within a few hours of the operation as the result of a unilateral tubercular meningitis. In order to produce a cure in certain cases of congenital hydrocephalus it will be necessary to operate early, before the fontanelles have closed. The author has operated, however, in one case in which the child was three and one-half years old. The five months which have elapsed since the operation have shown marked improvement in the child's physical condition, but the author does not speak hopefully concerning his intellectual future. Mayo Robson also punctured an acquired hydrocephalus in a child ten years old, the wound being closed without drainage. All the bad symptoms disappeared, and the child to all appearances made a complete recovery.

A. F. C.

Mosny: The Lesions, the Causes, and the Prophylaxis of Broncho-Pneumonia. (*Rev. Mens. des Mal. de l'Enf.*, March, 1891.)

The following are the author's conclusions:

1. Broncho-pneumonia is an acute specific inflammation of the bronchioles and lobules which are involved.
2. Whatever be primary or secondary, and whatever be the lesion which has preceded, the lesions of this disease differ in the different cases only by the variations of a process which is always identical.
3. Only the duration of the broncho-pulmonary inflammation or the virulence of the pathogenic agent can account for

differences observed in the appearance of the histological lesions.

4. The lesions, according to their topographical arrangement, show two distinct types; a lobular type, due to the action of the streptococcus pyogenes and alone constituting true broncho-pneumonia, and a pseudo-lobar type, due to the pneumococcus lanceolatus of Talamon-Frænkel, which should be distinguished from broncho-pneumonia and classified with simple pneumonia, of which it is a particular form, occurring among children.

5. The gravity of the disease, which is almost the same for all ages, should be considered as follows: 1. In the adult, owing to the rapid generalization of the pulmonary infection. 2. In children, owing to the constant presence of extensive accessory mechanical lesions, atelectasis and emphysema, which narrow the field of hæmatosis and cause death from asphyxia.

6. Broncho-pneumonia is epidemic and contagious. The only way to prevent its propagation is to practise antisepsis in isolation wards for infectious diseases with which it is constantly complicated.

A. F. C.

Mirinescu: Peripheral Polyadenitis and its Value in the Diagnosis of Infantile Tuberculosis. (*Rev. Mens. des Mal. de l'Enf.*, March, 1891.)

Notwithstanding the work which has been done in the investigation of tuberculosis in children, the diagnosis must usually be one of probability alone, even at an advanced period of the disease and when the lesions are diffuse. The differential diagnosis between simple broncho-pneumonia and tuberculosis with symptoms of broncho-pneumonia would be almost impossible if one depended upon the physical signs alone. The younger the child the more difficult this diagnosis. Abdominal tuberculosis is also difficult, especially at the beginning of the disease, and one is often puzzled in deciding between this disease and diarrhoea with emaciation. Hence the necessity for very thorough examinations. But all children do not present evident lesions of peripheral tuberculosis. On the other hand, most children with tuberculosis have generalized peripheral adenitis, or peripheral polyadenitis. The swollen glands may be quite small, but will usually be found in the inguinal, axillary, and cervical regions.

As to clinical history, tuberculous children are usually small, of suspicious heredity, pale, and feeble. They have poor appetites, and alternate between constipation and fetid, bilious, continuous diarrhoea. In the chest there are signs of broncho-pneumonia, the glands are usually distinctly felt under the skin, are hard, and feel like grains of shot. The

adenitis is generalized and extends to portions of the body contiguous to the enlarged glands themselves. Also this inflammatory condition does not change either in volume or consistence. In fifteen out of sixteen of such cases the author found bacilli, and produced tuberculosis in guinea-pigs in three months by inoculation with glandular pulp. The conclusion is that a child who shows vague signs of tuberculosis is most frequently tuberculous if he has peripheral adenitis, and no lesion of organs contiguous to the inflamed glands can be assumed as an explanation of their inflamed condition. It is not denied that peripheral adenitis may also exist with lymphangitis, syphilis, and impetigo, and the differential diagnosis is not always easy.

Macroscopically adenitis may be divided into four varieties:

1. That in which there are no tuberculous lesions to the naked eye.

2. That in which the gland is as large as a pea or a small nut, soft, red, and showing evident lesions of tuberculosis.

3. That in which the swelling is of the size of a large nut and caseous.

4. That in which the swelling is hard, as large as a millet seed, and contains a very small cheesy focus.

The initial lesion consists in a moderate hyperplasia of the connective tissue of the gland, the lymphatic sinuses being greatly enlarged and filled with large endothelial cells, nucleated, and round or cubical. The cells are free in the sinuses or attached to their walls. There are also other round, nucleated leucocytes, or migratory lymphatic cells, and an abundance of fatty granulations, the fat being due to changes in the endothelial or migratory cells. The blood-vessels are dilated, their endothelial cells are karyokinetic, and they contain coagulated fibrin which obstructs their lumina. The fixed cells of the lymphatic follicles multiply by indirect division, and a certain degree of hypertrophy of the follicles is the result. Under the capsule of the gland there are sometimes tuberculous follicles instead of lymphatic follicles. In the glands in which the lesions are most advanced one may find a cheesy focus at the centre, and around it tuberculous follicles in course of formation or of mortification. The vessels are for the most part obstructed by fibrin. In the cheesy glands one sees only a great cheesy focus limited by a zone of disorganized lymphatic follicles, the vessels obstructed by fibrin, for the most part. In the sclerotic glands, by the side of one or two tuberculous follicles, there may be vessels surrounded by much embryonic connective tissue. The lumen of the vessel may not be entirely obliterated. The sclerotic

process will be seen to predominate everywhere. If the vascular obstruction is due to coagulation of fibrin, the pathological product will soon be found deprived of blood and undergoing caseation. If the vascular obstruction is due to peri-arteritis, obliteration will take place slowly and incompletely, the tuberculous lesions will remain, but connective tissue will also develop and lead to sclerosis.

The giant cells in the tubercular glands are formed at the expense of the vessels. In the sclerotic glands bacilli are infrequent and may be wanting altogether, notwithstanding the presence of tuberculous follicles. In the cheesy glands they are constant but not numerous, and are to be found in the giant cells among the fixed and epithelioid cells or in their interior. The author believes that in the beginning of the disease the cheesy glands are very virulent. The number of bacilli changes from time to time, and in old lesions the author has found evidence of their degeneration. In the latter case the bacilli were larger, more granular, and more curved than they usually appear. Some bacilli instead of taking the fuchsin stain take the blue. The author has never found them encapsulated as described by Metschnikoff in his investigations concerning *spermophilus guttatus*. A. F. C.

Comby: Paralyzes of New-Born Infants during Parturition. (*Annales de Obst., Gin., y Ped.*, February, 1891.)

Peripheral paralyzes of the head or the limbs following obstetrical operations have been carefully studied by Dubois, Landouzy, and Duchenne. The author does not include in this study cases of facial paralyzes due to pressure with the blades of the forceps or of spontaneous origin, nor the rare cases which are due to traumatism of the vertebral column or spinal cord. Of paralyzes of the upper limbs he has seen three cases within a short space of time. The immediate cause of this paralysis is pressure upon the brachial plexus in the course of forceps or version operations. Erb has shown that injuries of this kind cause lesions of the fifth and sixth cervical nerves in the vicinity of the carotid tubercle. Duchenne has observed that such paralyzes involve the deltoid, subspinous, biceps, and coraco-brachialis muscles. The paralysis may be complete and involve all these muscles. In the first two cases observed by the author version had been performed with difficulty, and the left arm was paralyzed. The first of these cases was treated with the faradic current, and was cured in fifteen days. The second case was not seen until six weeks after the accident occurred and was not benefited by the electric current. The third case was the sixth child of a rachitic

mother; all previous labors had been fatal to the children, and this child was asphyxiated at birth. Both upper limbs were completely paralyzed. Neither faradization, nor friction, nor baths produced the slightest improvement. After eight months of treatment the paralysis was as complete as at first; the right limb was cold and cyanotic, and cutaneous sensibility and motion were entirely suppressed. Such a case must be considered entirely hopeless. In simple cases of facial paralysis Duchenne has shown that the prognosis should be guarded, as the result may be satisfactory even though slowly acquired. The treatment should consist in the use of the faradic current five or ten minutes every two or three days. By some writers the continuous current is preferred. To this may be added stimulating friction with turpentine or balsam, saline baths, etc. Joffroy thinks that in severe cases of paralysis of this variety the galvanic current alone should be used for the degenerated muscles, especially if the faradic contractility has about disappeared. The galvanic current should be interrupted or inverted in order to produce contractions as energetic as possible.

A. F. C.

Vargas: Chemical Study of the Etiology of Summer Diarrhœa in Children. (*Anales de Obst., Gin., y Ped.*, March, 1891.)

The investigations of this author are in accord with those which have been made by Booker and Escherich. He deduces the following conclusions, which condense the most acceptable and modern doctrine upon this intricate problem of the etiology of gastro-intestinal disorders in children.

1. In the intestines of children who suffer with summer diarrhœa numerous microbes have been found. There are three species of them which are capable of producing chemical poisons, which, when injected into animals, cause gastro-intestinal disorders identical with those experienced by children with summer diarrhœa.

2. The greater number of these germs are probably saprophytic. A microbe which lives in the intestine does not necessarily obtain its nourishment from living tissue. The alimentary substances in the duodenum before being absorbed have no more vitality than the fluids in culture-tubes. The same is true of the juices secreted by the intestine. A microbe which lives in a culture-fluid and develops a poison will also grow in the intestine and develop the same poison if it is not destroyed by the secretions of the body.

3. The only digestive secretion which has been demonstrated to be endowed with a germicide action is the gastric juice.

There is no doubt that the acid gastric juice has a germicide action upon many micro-organisms. The author has demonstrated that a two-tenths-per-cent. solution of hydrochloric acid will destroy Eberth's bacillus in half an hour, and two other bacilli obtained from drinking water which were believed to have caused certain cases of typhoid fever. The principal reason why a child nourished at the breast stands a better chance of living than one who is fed from a bottle is that the first receives nourishment which is quite free from germs. In order to acidulate cow's milk the addition of hydrochloric acid is necessary. The gastric juice is the physiological safe-guard against microbic infection of the intestines. If one may speculate upon this matter, it is deemed credible that some of the secretions which are poured into the intestines have germicidal properties, or that the cells, having absorbed poisonous albuminates, neutralize their effect in some unknown way, or that the liver, when in a state of functional activity, prevents these toxic elements from entering the circulation until they have undergone some kind of transformation.

4. Every germ which is capable of producing and developing an absorbable poison in the intestine is pathogenic. In order to demonstrate the pathogenic character of a microbe it is not sufficient that it be capable of causing disease and death when injected under the skin and into the blood, for the blood is a medium which is entirely distinct from the intestinal secretion in its action upon microbes, and it has been positively demonstrated that the blood holds germicidal properties.

5. The three microbes which have been described by the author differ enough from each other to be regarded as distinct species, and produce distinct poisons. Each of them will cause vomiting and diarrhoea, and will produce a fatal result if used in sufficient quantity.

A. F. C.

Simon: *Pleurisy in Children, and its Treatment.* (*La Cronica Med.*, February 20, 1891.)

In most cases in which pleurisy occurs in children it does not show the well-defined and characteristic symptoms which are typical of this disease. In the greater number of cases it is secondary to lesions of the lungs or to infectious diseases. It is prone to become encysted, and this makes the diagnosis difficult at a time when a positive diagnosis should be made. Three conditions are usually associated with it, antecedent disease, a concomitant lesion of the bronchi or the lungs, and encystment. The prognosis is not an easy matter to determine; some cases will terminate in suppuration with the presence of streptococci or staphylococci, and some in recovery.

The symptoms at the beginning of the disease consist in pain, fever, dyspnoea, dulness on percussion of the thorax, and suppression of the respiratory murmur. By simple inspection the symptoms are uncertain; at first there is immobility of the affected side, with frequency of respiration; then the intercostal spaces are dilated. The duration of the disease furnishes a useful element in diagnosis; a pneumonia lasts but a few days, a broncho-pneumonia persists three or four days, a serious pleurisy will last a month or five weeks, and if it continues longer it is probable that suppuration has occurred.

Termination by suppuration is more frequent than by resolution for serous pleurisy. For children under four years of age suppuration is the rule. When resolution occurs the fever gradually disappears, also the dulness. Should suppuration occur, the fever persists with irregular oscillations, but it does not usually exceed 38.5° C. The pus having become encysted may perforate the skin, the bronchi, or both points at once. While the prognosis is relatively favorable, death may occur from cachexia, asphyxia, or opening of an abscess into the pericardium or the mediastinum. If the diagnosis and treatment have been correct, recovery may occur even in very serious cases. The differential diagnosis between pleurisy and pneumonia during the first four days of the disease is very difficult, especially if there are accompanying ataxo-adyamic symptoms. At the end of five or six days the differential signs are more distinct. At the end of eight or ten days resolution will have taken place if the case were one of pneumonia, but if the case were pleurisy, improvement may have begun, but defervescence will be slow. The longer the disease continues the more certain will it be that suppuration has taken place. Puncture should not be practised at the beginning of the disease, and not until there is considerable certainty that suppuration has taken place. The treatment should be divided into two stages, that of the beginning, when it should be medical, and that of the later stage, which can usually be considered the stage of suppuration, when it should be surgical. At the beginning of the disease care should be taken to prevent chilling of the body; the patient should be kept in bed, the chest should be wrapped in cotton, and warm drinks should be given. The only drugs which will be serviceable are calomel in doses of one to five centigrammes every two or three days to produce mild derivative action of the intestines, and tincture of digitalis in doses of ten to twenty drops for its diuretic and antiphlogistic effect. Warm milk and diuretic drinks may also be given. Mustard plasters may be used with good effect at the beginning of the disease. Cantharidal blisters combined with cam-

phor, not more than four centimetres in diameter and not continued more than three hours, are sometimes warrantable in private practice, but not in hospitals, and after the blister is removed it should be replaced for an hour with a meal poultice. In the second stage of the disease one may practise thoracocentesis or incision if empyema is present. Puncture should be practised from the fourth to the seventh week of the disease, the point of election being usually near the axillary line. The pus being withdrawn by aspiration, the pleural cavity should be irrigated with two or three litres of a warm solution of boric acid. Multiple punctures may be practised if the pleurisy is serous, but if the accumulation is reproduced and fever persists, more efficacious measures are indicated. If incision is required, the seat of election in children is between the fifth and sixth intercostal spaces on the right side, and between the sixth and seventh on the left, at about the location of the axillary line. The skin should be incised to the extent of four or five centimetres along the upper border of the lower rib of the space selected. The pleura having been carefully opened and the pus evacuated, two drainage-tubes should be fixed in the wound and the cavity thoroughly irrigated with warm boric acid solution. It is unnecessary to say that the most scrupulous antiseptic precautions should be observed during and after the operation to prevent renewed infection. The wound should be protected with iodoform gauze, salicylated cotton, and abundant bandaging. Irrigation should be practised twice daily, and severe pressure should be avoided. Shorter and smaller tubes should be used as soon as the circumstances will allow, and they should be removed altogether as soon as suppuration is over. Seldom does a permanent fistula result. Estlander's operation is seldom indicated for children.

A. F. C.

Railton: Sporadic Cretinism. (*British Medical Journal*, March 28, 1891.)

Two cases with portraits are reported. They are brothers, there being five other children in the family all healthy. The family history throws but little light on the etiology of the disease. The maternal grandfather was intemperate, but other members of the family were perfectly temperate and healthy. The parents were in no way related. The elder of the two is eleven years old, thirty-two and a quarter inches in height, and weighs thirty-four pounds. Nothing unusual was noticed until he was a year old, when his development, both mental and physical, ceased almost completely. He did not walk until he was three and a half years old. At present he is

apathetic and sits for hours staring vacantly before him. He is disinclined to exertion, and if compelled to walk does so with a deliberate waddle, the feet being wide apart. His expression is calm, but he is subject to prolonged fits of sulkiness. His voice is guttural; he rarely utters a word, and has never spoken a connected sentence. The head is well-shaped, with some flattening at the vertex. The hair is normal. The features are broad and course, the eyes set wide apart, the root of the nose being flattened, while the alæ and septum are thickened. His thick everted lips are always open, with a large tongue protruding between them, but there is no flow of saliva from the mouth. He has only the blackened stumps of the milk teeth worn down to the gum, while some permanent incisors are beginning to make their appearance. A point of interest is the fact that the thyroid gland is present and can be felt as a small, firm, unsymmetrical body. The fatty tumors so frequently present in the supraclavicular spaces in such cases are entirely absent. The limbs are short and thick, and there are numerous deformities in the bones. The tendon reactions and superficial reflexes are normal.

The second patient, aged six years, is thirty-three inches in height, and weighs thirty-two and a half pounds. Although characteristic of cretinism, his expression is much more alert than that of his brother. He talks but little and is usually happy. His features show the same general characters as those of his brother, but to a much less marked degree. There are no pseudo-lipomata, but there is a small thyroid gland.

The distinctions that have recently been drawn between endemic and sporadic cretins the author believes to be unnecessary. Stress has been laid on the fact that endemic cretins are descended from goitrous parents, while sporadic cretins are not. This is not always true. Generally speaking, endemic cretins are goitrous, and have no pseudo-lipomata, while the opposite is true of sporadic cretins, but this may not always hold true, and we do not seem to be warranted in making two distinct classes. It has now been conclusively proved that both forms depend upon the same fundamental pathological conditions,—namely, loss of function of the thyroid gland.

Jardine: *Hæmatophilia in a New-Born Child.* (*British Medical Journal*, March 21, 1891.)

No bleeding occurred until the ninth day, and then arose from the navel. On the eighteenth day bleeding from the nose, mouth, and anus was noticed, and ecchymotic spots appeared on the chest and on the right knee and elbow. The

elbow became distended, the hemorrhage continued, and the child died on the twentieth day.

Thorne: Diphtheria; Its Natural History and Prevention. (*British Medical Journal*, February 21, 28, and March 7, 14, 1891.)

The author in the Milroy Lectures, after an historical review of the disease, considers certain points in etiology. The influence of soil and geological formations, while slight, is probably more important than some have been willing to admit. In the deep valleys of Wales the disease is very common. As to season, in England the disease is more prevalent in the last quarter of the year, there being a striking rise in mortality in October. The question of sex was considered at some length, the author holding, contrary to most observers, that females have greater power of resistance to exposure than males. In considering age as a factor, it was found that the greater number of cases occurred between two and twelve years, and a further excess could be shown between two and five years. The question of age, however, involves so many other considerations that its importance is very doubtful.

Several epidemics are referred to, showing how the prevalence of so-called simple croup was soon followed by cases of undoubted diphtheria. It is also a fact that many epidemics of diphtheria are accompanied by a large amount of illness to which are applied such terms as sore throat or tonsillitis. The infectious character of many apparently simple sore throats is also referred to. As to the sore throat of scarlatina, if there is any relation between it and diphtheria, it probably lies in the fact that the lesion of the fauces affords a soil for the reception of the diphtheritic contagium. Were it otherwise, the almost total absence of diphtheria as a complication of scarlatina among several thousand patients treated in the London Fever Hospital would be inexplicable. When diphtheria does occur it is almost invariably as a sequel to the scarlatina.

In considering certain investigations regarding the influence of foul drains and bad hygienic conditions in producing diphtheria, the author believes that the explanation lies largely in the circumstance that the faulty conditions in question often produce sore throat, often of a benign character, and that the abraded surfaces form a soil suitable for inoculation by the diphtheritic organisms.

The third lecture was devoted chiefly to the influence of schools in disseminating the disease, especial stress being laid on the conditions of school-life tending in that direction. It

seems probable that much closer contact is required to communicate the disease in adults than in children.

The fourth lecture was devoted to a consideration of other methods of diffusion of diphtheria, especially by milk, with a brief reference to the part played by the Klebs-Löffler bacillus in the causation of the disease.

Gowers : Atrophic Spinal Paralysis and Multiple Neuritis. (*The Lancet*, March 21, 1891.)

The case is reported of a boy, aged seven years, in whom the paralysis developed after several days of constitutional disturbance. The first symptom of this developed within twenty-four hours of a quite cold bath, to which he was unaccustomed. The weather at the time was very hot. The atrophic paralysis involved the whole left arm and shoulder-muscles, and the right deltoid, biceps, and triceps. At the end of a fortnight these muscles and the whole of the left arm presented the reaction of degeneration, and their paralysis and wasting proved permanent. Simultaneously with their palsy the legs became weak, although all movements could be performed. The knee-jerks were preserved throughout, and when the palsy had existed a week they had become excessive, and a foot-clonus had developed on each side. This continued for some months, although the legs gradually regained power, so that the child was able to walk in two months from the onset, and the legs ultimately became quite strong. The symptoms thus showed cervical anterior poliomyelitis, extensive and severe on the left side, and on both sides involving slightly the adjacent white substance, so as even to cause secondary descending degeneration in the pyramidal fibres transient, and due to damage that passed away.

The interest of the case, however, rested in the indications of neuritis. Even before the palsy was discovered the arms and legs became extremely tender, chiefly in the neighborhood of the elbow-joints and knee-joints, and thought to be in them, because every movement caused great pain.

Careful examination showed it to be entirely in the sciatic and popliteal nerves of the legs and the ulnar and median, especially in the arms.

The tenderness lessened upward and downward. There was no anæsthesia or other evidence of damage to the conducting fibres of the nerves. These symptoms lessened in the course of a few weeks and passed away entirely, although the atrophic palsy persisted in almost its initial degree. They were certainly due to a multiple perineuritis, affecting the nerves in the middle of their course, primary and developing

simultaneously with the spinal lesion in consequence of the same cause.

In commenting on the case, Dr. Gowers remarked on the probability that the pain and tenderness met with in other cases of poliomyelitis, and usually referred to the joints, was really seated in the nerves which suffer mechanical disturbance at every movement of the joint. Although poliomyelitis was probably produced through the agency of a blood state, the latter was often generated by exposure to cold, and effective chiefly in the hot season of the year. Exposure to cold was capable, also, of causing the other and more common form of multiple neuritis.

The author further discussed the blood state due to cold in the two classes, and referred to the leading features of the two forms of neuritis, the parenchymatous and the adventitial. Recent researches were referred to that suggested that there were two varieties of poliomyelitis, the primary affection in one involving the nerve-cells, in the other the basis substance of the gray-matter.

The paper concluded with an allusion to the probability that an actual organized virus sometimes produced the adventitial form of neuritis by the direct influence of the organism on the connective-tissue elements, and especially on the sheath, as was seen in leprosy and might be the case in syphilis, while, on the other hand, the parenchymatous variety was certainly often due to a product which the organisms produced by their growth in the body. Several questions followed the reading of the paper. In reply, Dr. Gowers said that one point in treatment was often neglected,—the importance of not permitting the spinal cord, when the seat of acute inflammation, to be the lowest part of the body. The evidence was conclusive in this case that the neuritis was primary and not secondary to the spinal lesion, and also that the conducting fibres of the nerve were not involved. In regard to the grouping of the muscles affected, as bearing on the central or peripheral nature of the lesion, he stated that the rule of association according to function in poliomyelitis was one to which exceptions were met with, in which the distribution of the palsy was more or less random, and indicated an irregular position of the lesion in the gray matter, by which groups of cells were partially and irregularly damaged.

Collie: *Purpura Fulminans Necropsy.* (*The Lancet*, March 21, 1891.)

About three weeks before the "eruption" the patient had scarlet fever. On admission he was a pale, thin boy, nine

years of age. Over the extensor aspect of the left elbow a large ecchymosis extended some way down the forearm. There was an extensive ecchymosis over the right hip and one on the calf of each leg. The ecchymoses appeared to be recent, and at their margins the extravasated blood was of a bright red color. There was extreme tenderness of the skin, but otherwise the patient made no complaint of pain. There was no hemorrhage from the mucous membrane. The patient passed urine free from blood. About an hour before he died a new ecchymosis was noticed behind the left ear. There was no fever. His mind continued clear. He died sixteen hours after admission and about forty-eight after the appearance of the eruption. Necropsy forty-eight hours after death. There was a large ecchymosis on the back and one on the hip. There was no extravasation of blood in any of the internal organs. There was general anæmia of the thoracic and abdominal organs. On examination of the brain the arachnoid was found to be milky, the convolutions somewhat flattened, and a small quantity of serum in the ventricles.

Remarks.—The interest in this case is that it appears to be one of a class of rare cases which have been described by Dr. Henoch. Of four cases reported, these symptoms were in common, hemorrhage from the mucous membranes was wanting, and extensive ecchymoses, from which, within a few hours, all the extremities became of a blue-black red color and the skin tolerably hard from infiltration of blood, occurred with great rapidity. In two cases there were sero-sanguineous blisters on the skin, which blisters never became gangrenous, or even stunk. The course of these cases is very rapid, scarcely twenty-four hours elapsing between the first appearance of the blood-spots and death. The longest case lasted four days. There were no complications, and post-mortem examination, with the exception of general anæmia, gave negative results; in particular there was no trace of embolism or thrombosis. The etiology is as obscure. One case showed itself two days after the complete crisis of a pneumonia, the other a week and a half after a very mild scarlatina. For the two others no etiology could be suggested.

Henoch adds in a note that two similar cases have been observed by Ström and Arctander, one of which followed a scarlatina, and, according to Heroé, three quite similar cases have been published by Guelliot.

III.—SURGERY.

Bishop: Chronic Intestinal Obstruction due to Swallowing of Safety-Pins. (*The Lancet*, November 29, 1890.)

A somewhat detailed account of this case is given. The diagnosis was obscure, until the passage of one of the pins per rectum gave the clue to the exact nature of the obstruction. The danger of the practice of putting safety-pins in the mouth has not often been so well exemplified. A case is recorded in Sajou's "Annual," vol. iii., 1889, p. 14, of a child in whom a diaper-pin passed per rectum without any trouble; the pin, however, was closed and the point protected by the guard. The case is one that renders pointed the incessant demands of abdominal surgeons for early laparotomy.

There was at first no hint as to the actual cause, until the first pin was passed. Even then the patient could only surmise that the swallowing took place during a fainting fit. She admitted that she was in the habit of putting safety-pins in her mouth.

The difficulties of diagnosis of the case lay in the course of the case and the absence of obstruction at the ileo-cæcal valve and pylorus. The pins caused no trouble as to pain until they reached the centre of the transverse colon.

The obstruction became very gradually less, until, after it had become absolute, an enema brought away a small pencil-shaped stool, which might have been forced through a narrow stricture. Of course, when once one of the pins came away the case became easy to treat, but not easy to understand.

The patient was treated by enemata, some of them being given while she was under chloroform. The patient made a complete recovery.

Voelckner: Caseous Gland opening into the Œsophagus. (*The Lancet*, November 29, 1890.)

A specimen was exhibited of a caseous gland opening into the œsophagus, which was obtained from a boy, aged nine years. He died from cystitis and septicæmia. At the necropsy, in addition to extensive disease of the bladder, kidney, liver, and spleen, there was found a mass of cretaceous glands at the hilus of the right lung. There was no ulceration in the air-passages, and no tubercle was found in the lungs.

On opening the œsophagus a perforation five millimetres in length was found to the right of the median line, on the anterior wall and a little below the bifurcation of the trachea. The opening led into a cavity in which caseous material could be seen. There was no history of any œsophageal trouble.

The case was brought forward as an unusual result of the presence of caseous glands at the root of the lung.

The frequent occurrence of malignant disease of the œsophagus at the level of the bifurcation of the trachea had suggested to the author the possibility of its being due to the irritation caused by enlarged bronchial glands, and these cases, together with one from the same source in which there was marked hyperæmia of the œsophagus opposite an enlarged bronchial gland, seemed to him to lend this view some support.

Bond : Treatment of Tracheal Stenosis by a New T-Shaped Tracheotomy-Tube. (*The Lancet*, March 7, 1891.)

In cases of transverse wound of the trachea the author has found a T-shaped tube, illustrated in the original article, very useful, rendering the patient's condition very comfortable, enabling him to talk and earn his living.

The tube is made of metal in two halves, with a removable collar and screw. One case using this tube is reported. The patient introduces it himself, one-half at a time. It combines the advantage of an upward and downward dilatation. If compelled for any time to wear a tracheal tube, the T-tube has the advantage of permitting phonation.

Campbell : Congenital Occlusion of the Urethra. (*British Medical Journal*, February 28, 1891.)

The child at the end of twenty-four hours had passed no urine. On examination the meatus appeared to be covered by a thin membrane, but when it was divided no urethra was found. No blunt instrument would pass beyond the incision. By using alternately a sharp probe, a blunt probe, a stylette, and a small silver catheter, a passage was laboriously formed through the penis. Great care was necessary to keep in the imaginary line of the urethra, the only guide being the finger under the floor. At last, having made an opening as far as the subpubic arch with the finger in the rectum, a plunge was made forward with the stylette, considerable force being used. It entered some place where no resistance was met, but on withdrawing it and introducing the catheter no urine came. Twelve hours later the child passed urine freely. When last seen he was three years old, and suffered no inconvenience from the urethra.

Davidson : The Treatment of Purulent Pericarditis by Free Incision. (*British Medical Journal*, March 14, 1891.)

The author reports the following interesting case: The patient, a boy of six years, was first seen on July 12.

Three weeks before he had injured his foot on a stone, and a week later a swelling appeared on the right side of the chest. On examination acute necrosis of the third metatarsal bone was found, and also a subperiosteal abscess over the eighth rib on the right side. A pericardial rub could be heard and pleuritic friction over both lungs. There was also dulness, tubular breathing, and crepitations at the apex of the right lung. Three days later these signs had disappeared from the apex, but had appeared at the base of the lung. On that date, the pulse being 144, respirations 52, and temperature 103° F., as there was considerable dyspnoea, and at the same time marked increase in the cardiac dulness, the pericardium was explored with a hypodermic needle, but without result. On July 18 the pericardium was again explored and pus obtained. An incision was then made in the fifth interspace and eight ounces of pus evacuated and a drainage-tube inserted. The operation seemed to give considerable relief, but on the following day the temperature rose to 104° F. The patient lived seven days after the operation, and finally died of syncope.

At the autopsy there was found general adhesions of the lungs to the chest walls and to the pericardium. There was a small amount of sero-purulent fluid in each pleural cavity. There was a spot of consolidated lung-tissue in the lower lobe of the right lung. The heart was thickly covered with lymph, but was not adherent at any point to the pericardium. There was about a drachm of pus at the back of the pericardial sack.

In sharp contrast to the above case is the following, in which there was no suspicion of septic infection:

The patient, a boy aged six years and nine months, was first seen on May 12. He had for two weeks suffered from a cough, feverishness, and pain in the left side. The pulse was 120, respirations 40, and temperature 102.8° F.

On examination the usual signs of pleuritic effusion were found on the left side, and the apex was pushed to the right. Pus was obtained from the left pleural cavity with a hypodermic needle. On the following day a free incision was made into the pleural cavity and ten ounces of pus evacuated. On the second, fourth, and sixth days there was a marked rise in the temperature. The drainage was found to be free and the heart was examined. The area of cardiac dulness was enlarged, but the sounds were free and clear. On May 12 the dulness was greatly increased in extent. Pus was withdrawn by a hypodermic needle. An incision was then made and several ounces of creamy pus were evacuated and a drainage-tube was inserted.

The operation was at once followed by a fall in temperature and improvement in all the symptoms. The empyema required about five weeks to heal, as did also the pericardium: The patient was discharged cured on July 13. In February he still continued in good health.

In this case effusion of lymph probably occurred on the pleural and pericardial surfaces at about the same time, but formation of pus took place sooner in the pleural cavity than in the pericardial. That sequence has been observed in other cases. It is probably rare for pus to make its way from the pleural sac into the pericardium.

Caiger: Pyæmia following Scarlet Fever; Suppuration in Pleura and Elbow-Joint. (*The Lancet*, April 11, 1891.)

The symptoms presented by the patient whose case is given below—the ulceration of the fauces, offensive nasal discharge, deeply-stained rash, and extensive suppuration in the cervical region—show the severity of the attack of scarlet fever, and make it a matter of no surprise that pyæmia supervened as a complication of the disease. The early recognition of the gravity of the joint complication and its prompt treatment form most important elements in the prevention of disorganization of the joint and the restoration of its full usefulness. The patient was eight years old. The rash was almost hemorrhagic at the time of admission. The child developed brawny swelling of the neck; incisions were made in this on several occasions and pus found.

A little more than a month later pus was found in the left elbow-joint. A drainage-tube was put through the joint. Paracentesis thoracis was done a few days later, and three pints of sero-pus removed from the left pleural cavity.

One week later one pint of pus was removed from the right pleural cavity. This filled again and resection of a rib was done. About two pints of pus were evacuated.

About a week later the empyema was found not to be draining properly. The tubes were removed temporarily, and about a pound of solid coagulated lymph evacuated by coughing.

From this time on recovery was rapid. No adhesions formed in the joint. In connection with this case the author refers to another, aged one and a half years, in which—though the child subsequently died—a pyæmic joint was treated by the above method with equal success.

Owen: Rupture of the Bladder during Operation, with Remarks on Litholapaxy in Children. (*The Lancet*, March 21, 1891.)

Mr. Edmund Owen reported a fatal case of rupture of a boy's bladder, which accident occurred during the performance of the operation of litholapaxy.

The patient was an unhealthy child of something less than five years, who for two months had been troubled with symptoms indicating vesical calculus.

A No. 6 lithotrite was introduced and the stone was effectually and efficiently dealt with. The bladder was then washed out. The operation was practically done. A final washing was being done, when an ominous gurgling was heard. The abdomen was opened and the rent sewed up. The rupture was extraperitoneal, but the peritoneum was opened in searching for the rent. The boy died of collapse.

Mr. Owen attributed the calamity to the fact that in the temporary absence of a wash-bottle of a size appropriate to childhood he was using one designed for the adult.

Illingworth: Tapping the Ventricles. (*British Medical Journal*, April 4, 1891.)

The child, three years of age, had hydrocephalus from the age of nine months. The circumference of the head was twenty-four inches, and as the symptoms became more urgent in spite of treatment tapping was advised. A Southey's trocar was passed through the anterior and outer corner of the anterior fontanelle downward and inward deeply, the child having first been anæsthetized. On reaching the ventricle a jet of clear serous fluid spouted two feet from the canula. Two ounces were withdrawn and a canula fastened *in situ*. It was dressed with sublimate solution on lint. In a week the canula was forced out by the healing process. The bulging of the anterior fontanelle was replaced by marked depression and the child made a perfect recovery.

Southam: A Case of Traumatic Cerebral Abscess; Trephining; Free Discharge of Cerebro-Spinal Fluid; Recovery. (*British Medical Journal*, May 9, 1891.)

The patient was a boy of thirteen years. He was first seen six days after an injury to the head, when pus was found oozing from a wound of the scalp and a punctured fracture of the frontal bone was discovered. The bone was trephined and an irregular cavity in the frontal lobe washed out with boracic acid solution, and a drainage-tube left in position. The point of chief interest in the case was a free discharge of cerebro-spinal fluid, which occurred on the fifth day and continued for a week. It came not from the subarachnoid space, but from the lateral ventricle with which the abscess cavity

communicated. Recovery was complete, there being no impairment whatever of the mental faculties.

Wright, G. A.: The Treatment of Tuberculous Abscesses by Evacuation without Drainage. (*British Medical Journal*, April 20, 1891.)

Twelve cases were treated by this method, of which ten were successful and two failed. The age of the patients ranged from one to ten years. The mode of procedure is as follows: An incision is made, the cavity of the abscess is explored with the finger, and all parts of it are well scraped with a sharp spoon. It is then well flushed with a hot sublimate solution (one to three thousand). Sponges, made of absorbent wool covered with carbolic gauze, are taken in a pair of forceps and screwed into all parts of the abscess-cavity, which is thus well dried and wiped out. Iodoform emulsion is then injected to thoroughly distend the cavity. The incision is closed by silk sutures and the excess of emulsion squeezed out. An antiseptic dressing is applied and pressure made by an elastic bandage. The wound is dressed and the sutures removed at the end of two weeks.

Ashby: Sloughing Ulceration of the Larynx in a Child affected with Tuberculosis. (*British Medical Journal*, April 25, 1891.)

The patient, twenty months of age, had died of catarrhal pneumonia and miliary tuberculosis. He had been admitted to the hospital six weeks before with urgent symptoms of laryngeal stenosis, and was intubated, the tube being removed on the fourth day. The intubation relieved the dyspnoea, which did not return after removal of the tube. Slight evidences of pneumonia remained at one base.

Four weeks later the boy contracted measles, the pneumonia became worse, and he died in two weeks. The right lung was semisolid with caseating broncho-pneumonia, breaking down into small cavities. There were miliary tubercles in the left lung and liver. There was extensive superficial ulceration of the pharynx on both sides, exposing the muscular layer. The vocal cords were also ulcerated and there was a superficial ulcer in the trachea. Microscopical examination showed that the ulceration was not tuberculous but inflammatory, resembling cancrum oris in its nature. The ulcerative process appeared to have been a sequel left by the measles.

* Harris: Rupture of the Vagina, with Fatal Hemorrhage and Peritonitis. (*British Medical Journal*, May 9, 1891.)

The author, a surgeon in the India service, reports the case as occurring in a girl twelve years old. Under the system of child marriages such occurrences are not rare. In this instance an irregular circular rent was found at the upper vaginal *cul-de-sac* of the left side, at its junction with the neck of the uterus and extending into the peritoneal cavity.

Burgner: Fractures of the Leg during Parturition.
(*Rev. Mens. des Mal. de l'Enf.*, March, 1891.)

The author reports five cases, in children from six months to three years of age, of fracture of the leg occurring during parturition. The fractures were followed by pseudo-arthroses, and the cases were treated by resection. The fracture, which is usually located at the lower half of the tibia and fibula, is caused by traction upon the legs at the time of birth. The mechanism is that of indirect fractures, and the fractures present all the characteristic signs of indirect fractures of the tibia and fibula. The question arises, Why does pseudo-arthritis instead of consolidation occur in these cases? In the cases under consideration there were no morbid constitutional conditions, hence the cause must be sought in the lesion itself. Of course, defective treatment, or rather an absence of treatment, was primarily at fault, for the children went a long time before it was apparent that any fracture existed. The oblique direction of the fracture, the angle formed by the fragments, and the interposition of the soft parts between the fragments, all are favorable to a pseudo-arthritis in preference to the customary callus. In all the author's cases there was extreme atrophy of the fragments, which in some of the cases were barely in contact at their smooth ends. If the pseudo-arthritis had existed some time, the limb would be found entirely atrophied, especially in the segment underlying the pseudo-arthritis.

The shortening varied from five to fifteen centimetres. The impression of the sole of the foot on the diseased side was narrower than on the healthy side. The author's operation for these cases was an osteotomy. The pseudo-arthritis was exposed, the fragments resected, and united by suture. An antiseptic dressing was applied and subsequently a plaster of Paris bandage. None of the cases were cured, though the operation was done three times for one of them. These unfavorable results were attributed to the antiseptic method which moderates the inflammatory reaction, and so prevents the formation of a solid callus. The following propositions are offered by the author for future cases: (1) Simple oblique osteotomy or cuneiform osteotomy should be replaced by longi-

tudinal oblique osteotomy or oblique resection of the fragments. (2) Suture and union of the wound by first intention should not be desired, the bones having been brought together and sutured. In this way an intense local reaction will be obtained favorable to the osteoplastic activity of the periosteum. (3) Plaster bandages should be given up. (4) A fracture having been recognized, it should be treated in a proper manner immediately after its occurrence, or as soon afterwards as a diagnosis can be made.

A. F. C.

Pitt: Acute Intestinal Strangulation due to Volvulus in a New-Born Infant. (*The Lancet*, April, 1891).

An infant had complete obstruction, with a greatly distended abdomen, supposed to be due to an imperforate rectum. A left inguinal colotomy was done, and the child died when two days old.

The colon, rectum, and lower two feet of the ileum were normal. The three feet of intestine above this were distended, black with engorged blood, and acutely inflamed. There was a sharp line of demarcation from the healthy bowel above, but less sharp below. No trace of any band or intussusception could be found, and it was concluded that the acute strangulation was due to a volvulus.

The only case on record of a volvulus in a new-born child was reported by Mr. Harrison Cripps in volume xxxi. of the "Transactions of the Pathological Society of London." In this case a Lettré's operation was performed. The child died when three days old, and at the post-mortem inspection a volvulus of the ileum was found.

The earliest case otherwise appears to be that of a child three years old, referred to by Keating.

Bibliography.

DISEASES OF THE DIGESTIVE SYSTEM OF INFANCY AND CHILDHOOD, WITH CHAPTERS ON THE INVESTIGATION OF DISEASE, DIET, AND GENERAL MANAGEMENT OF CHILDREN, AND MASSAGE IN PEDIATRICS. By Louis Starr, M.D. P. Blakiston, Son & Co., Philadelphia, 1891. Pp. 397.

In size, the second edition of the book is somewhat smaller than the first; the general appearance of the volume is more compact, and altogether neater. Like the first edition, the printer's work has been done well, and the book is a creditable one in its general make-up. Several illustrations have been added.

The first chapter deals with the investigation of disease, and covers fifty-eight pages. It is practically the same as in the first edition. With most of the statements we are in hearty accord; we think, however, the one relating to the urine, on page 35,—*i.e.*, that albumen and blood are frequently present in the urine of children,—is likely to be misleading. The author's statement regarding the examination of the spleen we can fully endorse, that, if it is not felt by palpation, it can be pretty safely put down as not enlarged. The great advantage of the stethoscope over the naked ear in auscultation of the chest is recognized by the author, and its use advised.

The second chapter deals with the general management of children, and is chiefly devoted to the subject of infant-feeding and the diet of older children. In the subject of wet-nurses, the author still clings to the view generally advanced that the age of the wet-nurse's infant should be as nearly as possible that of the child. Our practical experience does not accord with this observation. He states that the supply of milk in the wet-nurse may be determined by weighing the child before and after nursing, and that it should gain from three to six ounces. This is very vague, and certainly differs with the age of the wet-nurse's child, and will prove of little help to the student. He states that he has almost given up personally the use of wet-nurses, so good have been his results in bottle-feeding. This view he has reached since the first edition was published, as it is not included in that. We are glad to see that there have been dropped from the text the old analyses of breast-milk of Vernois and Becquerel. These certainly should be relegated to oblivion. The analysis quoted is that made by Leeds, and is certainly much nearer the facts in the case. Some good hints are given in regard to the examination of cow's milk, and the use of the lactometer is advised. This is a subject in which most of the text-books are unfortunately silent.

A short chapter upon the sterilization of milk has been added, and the author gives a cut of his own sterilizer, which seems to be from the description efficient, but rather complicated. There has been also added to this section of the book a chapter on the management of delicate and premature infants. The statistics of Tarnier and other French writers are given, and a cut is introduced of Tarnier's incubator, or *couveruse*.

In the matter of infant-feeding, it seems to us that the author has made a mistake in giving too large a number of formulæ, each one only slightly differing from the others, so that the student will be rather confused than aided thereby. The chapter on massage is a very practical one, and, as the author states, is a subject which deserves much more attention than it has hitherto received in connection with pediatrics. It is largely based, as he tells us, upon Murrell's well-known monograph.

These general topics, before mentioned, make up about one third of the volume, and in our opinion much the most valuable part of the work. The remainder of the book has been but little changed from the first edition, excepting the introduction of a chapter eighteen pages long, on the second dentition and its accompanying disorders. It seems to us that the importance of this subject has been rather exaggerated, although we can certainly agree with the author that hitherto it has not received the attention it deserves. In regard to dentition as a whole, the author is a strong believer in it as an etiological factor in the diseases of childhood, and discusses at considerable length its complications,—urticaria, scrofulous eczema, convulsions, etc. Regarding gum-lancing, he says, "if fever, irritability, sleeplessness, vomiting, or diarrhœa, during its progress are dependent upon dentition, he invariably lances the gums." He does not, however, tell us by what means he arrives at the conclusion that the symptoms before noted are "dependent upon dentition."

We think the writer has erred in the introduction of too many formulæ. For example, on the subject of eczema, no less than thirteen forms of local application are recommended. Many of the same formulæ are repeated in different parts of the book.

On the whole, most of the faults of the book are minor ones, and, like its predecessor, the first volume, the work is sure to find many friends, both among students and practitioners who are interested in pediatrics.

L. E. H.

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Original Communications.

CONGENITAL AND INFANTILE SPASTIC PAL- SIES, WITH NOTES OF ONE CASE OF EACH FORM.*

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As the cerebral and spinal paralysis of children differ widely in many cases in their pathology and results from those of adults, it seems fitting to consider them apart by themselves. Again,—excluding those cases of palsy due to disease of the spinal cord,—we may fairly treat of the congenital and infantile (or acquired) forms together, as their pathology and results are so similar, although their causation involves different factors.

In both divisions the paralysis may be slight, producing perhaps only permanent weakness of an arm or leg (with some atrophy), or it may be very extensive, with a great attendance of involuntary movements, and, according to the age of the patient and the part of the brain affected, imbecility or down-right idiocy may obtain. And it is well worth while to discuss these cases of apparently incurable nervous disease, because we shall gain clearer views as to the pathology of these cases, which may help us in diagnosis, prognosis, and treat-

* Read at the meeting of the Midland Branch of the British Medical Association at South Lincolnshire, on April 16, 1891.

ment, and especially in that most important branch of treatment, prevention, if we can find any indications of value.

Naturally, we may commence with the congenital cases. Here two forms are met with, according to the time of the inquiry which is the cause.

First, those injured before birth, either by blows on the mother's abdomen, or by less tangible causes, such as frights and other mental impressions of the mother. An example of this class will be given presently.

Secondly, those injured during the act of parturition, from the various accidents which may attend it. Several of the cases which I have narrated in the *Practitioner** and the *British Medical Journal*† are instances of this. Thus, one patient, H. E., a case of congenital spastic hemiplegia, was born after a long and difficult labor; Lily H., a case of congenital spastic paraplegia, has had stiff knees ever since birth; and Walter T., a case of spastic diplegia, has been paralyzed since birth. As an example of the comparatively rare cause, the use of the forceps, Dr. Bramwell's case may be referred to, where birth had been helped by instruments, a depression on the right side of the head was noted by the father, and left hemiplegia with constant epileptoid convulsions followed.‡ In this paper I am not concerned with the minor obstetrical paralysis, produced by traction on the arms or neck.

The *pathology* of these cases is, I believe, almost invariably that of meningeal hemorrhage. This may be produced, during a long labor, by the asphyxiated state of the child through pressure on the placenta or cord, by a breech presentation giving rise to great cerebral congestion, by actual compression of the skull in labor, or by the use of the forceps, any of which conditions may result in rupture of some of the superficial veins of the cortex.§ However produced,

* *The Practitioner*, February, 1888, and February, 1889.

† *British Medical Journal*, February 8, 1890.

‡ *British Medical Journal*, 1886, vol. ii. p. 1035.

§ Kundrat (*Wiener Klin. Wochenschrift*, 1890, No. 46) gives two forms of intrameningeal hemorrhage in new-born infants. First and commonest, it is subarachnoidal, and in the tissue of the pia mater on the

meningeal hemorrhage in infants leads to atrophy and sclerosis of the cortex cerebri, and most probably in some cases to absence of portions of the brain, the so-called proencephalus. The anatomical and histological condition of the cortex will vary with the time elapsed since the birth of the child, or the previous accident. In the most recent cases, blood has been found effused beneath the meninges. Dr. McNutt—whose very valuable work in this department must be well known to all readers of the *ARCHIVES*—has recorded a case in point. An asphyxiated child was born, resuscitated, and paralysis of its right arm was noticed. It was comatose for its six days of life, and at post-mortem there was found to be a blood clot over the posterior surface of the left hemisphere. In cases examined later after the inquiry, the products of blood-degeneration, such as crystals and pigment, have been observed, while still later, sclerosis and atrophy of the gray matter of the cortex with or without cysts in the meninges, and evidence of some old meningitis have been demonstrated post mortem. And, as has been alluded to above, a deficiency of more or less of the brain-substance has occasionally been found,—proencephalus,—itself probably the result either of pressure by blood between the brain and the skull, or by some vascular obstruction in the arterial supply. If these brains be examined microscopically, the large cells of the cortex will be found shrunk and infrequent, corpora amylacea, round cells, and fibrous tissue will be present, the pia mater being probably much thickened and white. The result of these pathological lesions is as follows: First, paralysis of arm, leg, and face, or double hemiplegia-diplegia, according to the area of brain involved. Again, ac-

convexity of the cerebrum, and diminishing in intensity from the median line outward, generally bilaterally. In the second form there is an effusion between the dura mater and arachnoid. The children are either born dead or they die suddenly soon after birth. Although this condition is most common in those in whom the labor has been difficult, it may occur after an ordinary confinement; in either case it is due to compression of the superior longitudinal sinus and its veins from dislocation of the bones of the skull. That this is the cause can be proved by dissection and also by injection after death. (*British Medical Journal*, February 21, 1891.)

cording to the part of brain attacked, imbecility or idiocy may come on, it does not necessarily follow that where a large amount of the motor area is injured that idiocy must needs exist. Next, as a result of the brain lesion, follows descending degeneration (or perhaps a want of development in the earliest cases) in the lateral columns of the cord. That cuts off, at all events partially, the cells in the anterior horns of the gray matter of the cord from communication with the brain. The clinical features which correspond with this pathological condition are all due to increased muscular tonicity. First, all the tendon reflexes are exaggerated or become apparent, in the leg, the knee-jerk (and ankle-clonus when the child has walked,—this, of course, does not apply to the present congenital cases) and perhaps rectus-clonus; in the arm, the supinator, biceps, and triceps reflexes can be obtained. Also, if there be any spasm in the muscles of the forearm, say the wrist is flexed on the forearm, sudden extension will very often bring on a state of clonus in those muscles. So far, all these tension-results are due to the unrestricted action of the ganglion-cells in the anterior horns of the spinal cord, and they are strictly comparable to the effects of strychnine. The muscles also respond readily to the faradic current, and, in reference to their galvanic irritability, show no evidence of the "reaction of degeneration." But, probably as the damaged cortical cells partially recover, their controlling action, their power of inhibition, becomes manifest, or their power of *self-control* never gets properly developed (as is believed to be the case in epilepsy), and, as a result, automatic movements, athetosis, mobile spasm, hemichorea, are manifested in many of these cases. It seems quite doubtful at present whether any special part of the brain in children is related to these disorders of movement; in Charcot's cases (adults) of hemichorea and hemianæsthesia, the lesion was in the posterior third of the internal capsule, but there seems to be no affection of sensation in these infantile cases, and Dr. Gowers remarks that a lesion of the brain in childhood seldom, if ever, causes persistent loss of sensibility. These irregular and spontaneous movements are probably due to the action of impulses from a damaged and partially recovered cortex.

Also, not infrequently, either during dentition, or, escaping that period, during puberty, patients with congenital hemi- or diplegia are liable to epileptoid convulsions. These may be truly Jacksonian and probably due to a limited lesion of the surface of the brain, or they may be general. The first case recorded in my paper in the *British Medical Journal*, that of H. E., is an example of spastic hemiplegia, wherein epileptoid convulsions occurred during puberty, while Ada M.—a case of congenital spastic hemiplegia—commenced to have “fits,” generally with “snatching” of the right side, when she was two and a half years old. Owing, doubtless, to the arrest of development of part of the brain which is seen in the worst cases, more or less difference is noted in the sides of the head; sometimes there is even a hole in the skull, corresponding with the hole in the brain, and where there is diplegia, the skull will be—relatively to the age of the child—very small. Ada M., again a congenital case, has marked difference between the sides of her head, which is also small for her age.

The following case, which I owe to my partner's (Dr. Collier) kindness, presents many features of interest:

H., aged six.

Previous History.—He is the third child, and a few weeks before his birth his mother had a severe fall. The labor, however, was normal. His right arm and leg have been weak ever since birth. He has gained a fair amount of power in the leg, though he limps very perceptibly in walking.

Present condition (notes taken December 18, 1889).—He is an intelligent child. There is no apparent difference in size between the sides of his head, nor is there any affection of his face. The movements of his eyes and their ophthalmoscopic appearance are normal.

Right arm.—The forearm, which is half an inch less in circumference than the left, is generally flexed on the arm at about a right angle; this condition can be overcome by steady pressure. The muscles are quite as firm and well-nourished as on the left side. The supinator, triceps, and biceps reflexes are present. The hand is usually flexed on the wrist and the middle phalanges of the fingers are over-extended; when the flexion was suddenly resisted a clonic state was produced. No

athetosis or mobile spasm has ever been noticed. The grasp was weaker than that of the left hand.

Right leg.—This was slightly smaller and three-fourths of an inch shorter than the left; the foot, when at rest, was in a position of talipes equinus-valgus; when moved, as is pointed out by Dr. Gowers, this changes to talipes varus. The great toe was over-extended.

The patellar reflex was excessive, and the rectus- and ankle-clonus could be produced.

He has never suffered from "fits" or "convulsions" at any time, and has had no trouble with micturition or defecation. I may add that since these notes were taken I have had the satisfaction of seeing him well through a sharp attack of acute lobar pneumonia.

This, luckily for the lad, is an example of the slighter forms of congenital cerebral spastic palsy (the birth-palsy of Gowers). I call it congenital because it dates from birth, and cerebral because almost certainly the affection of arm and leg, with no coldness and but little atrophy of the muscles, and with increased tension in those muscles going on to a spastic condition (whence these and the infantile cases have been termed *spastic* palsies), points to the lesion as situate in the brain. In all probability the patient has had meningeal hemorrhage over the leg- and arm-centres in the cortex of the left hemisphere, and now there is a small amount of cortical atrophy in that region. In a few cases on record of these cerebral palsies of children there has been no spasm in the affected limb or limbs, which, like those in acute anterior poliomyelitis, have been markedly colder than their fellows, so that the title "spastic" is not completely inclusive of all these cerebral cases. My second case, in the *British Medical Journal*, of infantile cerebral hemiplegia, had no spasm in her palsied arm and leg, the latter of which was always colder than the right leg, and in Dr. Osler's excellent monograph he gives four cases where rigidity or spasm was absent. Whether these cases own an altogether different pathology, or whether the lesion is differently located, seems uncertain at present. In the case just narrated, as in the case just quoted, the great toe was over-extended. As I mentioned in the paper containing her case,

D'Espine considers this to be due to the unbalanced action of the extensor proprius, the plantar arch falling through the paralysis of the peroneus longus.

The prognosis of this case of congenital hemiplegia is distinctly good. His intellect is perfectly clear, and as the palsy is slight, he will probably grow up useful and fairly healthy. The chief danger (in connection with his cerebral condition) I should anticipate for him is from the possible onset of epileptiform convulsions about the age of puberty, though fortunately he has no athetosis or mobile spasm, which, Dr. Osler says, are associated with a tendency to epilepsy. The worst of these fits is that they enfeeble the patient, and in particular the patient's brain. In the more serious forms, such as spastic diplegia (such as that of Walter T.,—in February, 1889, *Practitioner*), with more or less mental affection, although a little can be done in the way of training to render life more useful, still the outlook is bad, and if convulsions should supervene, the patient may die in one of the fits or recover with absolute loss of reason.

Infantile or acquired cerebral spastic palsy.—This may come on in a variety of ways. Not infrequently in the course of or immediately after some acute specific febrile disease the child is seized with one or more fits of convulsions, sometimes unilateral, sometimes general, and when they have ceased, some form of paralysis, hemi- or paraplegia, is noted. *Measles*, for example, was in the closest relationship to infantile cerebral palsy in my second case (*British Medical Journal*) of right hemiplegia, as in seven of Dr. Gowers's, four of Dr. Osler's, and four of Dr. Abercrombie's. *Scarlet fever* also preceded seven of Dr. Gowers's and seven of Dr. Osler's. *Diphtheria*, again, has occasionally been followed by hemiplegia, as Drs. Abercrombie and Henoch have noted. Dr. Osler records three cases, Mairé one, and Dr. Gowers two of this affection in or after *whooping-cough*. Dr. Gowers also gives one case after *pneumonia*; the paralysis which occurs after pneumonia of the apices appears to be only temporary, and so does not concern us here. Or, the fits of convulsions may own some special exciting cause, such as a fright, as in the case about to be related, or they may be debited to that best abused process

of teething. Occasionally, when the child seems to be in perfect health, it may suddenly be found to be paralyzed in arm or leg or both. This happened to my second case in the *Practitioner* (1888), where a fortnight before the notes were taken he went to bed quite well and awoke feeling weak in his left leg. The next day it was noticed that his left arm was weak also. Or, as in the eighth case in the same series, the attack may come on with fever convulsions and a temporary comatose state, the paralysis appearing as the child improves. If the child be old enough to have learned to speak, or if the lesion be on the left side of the brain, probably there will be aphasia, which will gradually disappear if the child survives.

Pathology.—Taking first those kinds of paralysis which own infantile causes, we find several explanations current. When the palsy follows an acute specific disease it very probably is due to hemorrhage into the meninges, the fever predisposing thereto either by the action of the particular poison or, as Dr. Ashby has suggested, by that of excessively high temperature on the walls of the blood-vessels. Now, as I have mentioned elsewhere, of all a child's organs, the brain is the most developing one in the first ten years of life, it has the most delicate changes going on, especially in the cortex, a very free blood-supply, and probably the vessels have less support on the surface and interior of the brain than in any other part of the body. Also, we know that tubercle attacks the meninges with far greater frequency in children than in adults, thus showing, I think, a predisposing tendency. And the excitable nature of children may favor it. The sclerosis found post mortem (which will be alluded to presently) seems generally to be in the convolutions adjoining the motor area, not scattered about, but as though an overflow of hemorrhage had started from the fissure of Rolando (as in the meningeal hemorrhage of birth-palsy). Also, when preceded by convulsions, very probably these may be the actual cause of the bleeding, or, *vice versa*, the fits may be due to the cortical irritation produced by the hemorrhage. In the case alluded to above, where a boy woke up one day and found his leg weak, and next day his arm followed suit, suggest more certainly a

progressive hemorrhage on the surface of the brain than any other pathological condition with which I am acquainted. Dr. Gowers has suggested a cortical venous thrombosis as originating these forms of paralysis ; allowing this to be the case, it seems probable that, as has actually been observed, rupture of the vessels after the thrombosis causes hemorrhage into the meninges. Again, in cachectic children, either after the acute illness mentioned above or after diarrhoea infantum, fatty degeneration of the cerebral vessels is not uncommon, which would render the risk of hemorrhage greater. *Meningitis* or *meningo-encephalitis* has been found in some cases, a condition which itself quite probably may be the result of meningeal hemorrhage.

An inflammation of the cerebral cortex, analogous to that of the anterior horns of gray matter in the spinal cord, its infantile spinal paralysis, has been invoked, but it does not seem at present to have much evidence to support it. *Tubercle*, according to Henoch, is responsible for many of the sudden attacks of hemiplegia in children ; a statement which I can scarcely agree with from what I have seen or read. *Tubercular meningitis*, of course, often causes hemiplegia in its career, but that is rather out of the line of the cases we are considering now. Passing on to the causes of paralysis, which children have with adults, the first is *embolism*. This undoubtedly does occur, and when in any connection with scarlet fever or acute rheumatism, may be due to heart-disease directly. Or it may come on, as in diphtheria, when the heart-movements are very feeble and clots are formed in its chambers, from which a portion may be washed into the cerebral circulation. Such cases have been related by Sir George Humphrey and Dr. Abercrombie. *Congenital syphilis*, causing sclerosis and chronic meningitis over the cortex, is responsible for some cases.

The *tumors* of the brain, tubercular, gummatous, and gliomatous (the two latter of which are not common in children, though Dr. Osler has recorded a case of glioma causing spastic hemiplegia and Jacksonian epilepsy for some years in a young girl), may give rise to hemiplegia and disorders of movement of much the same character as those already men-

tioned. The situation of the tumors, especially the tubercular, is not often in the motor tracts; as far as my experience goes, massive tubercle in children generally effects the cerebellum. As with congenital palsy, the post-mortem appearances of this affection will vary very much with the lapse of time since the attack of paralysis, and be much the same as those of the former complaint, though they assume a less marked character. Under the term *cerebral spastic palsy* I would include the spastic paraplegia of children, on account of its constant association with some mental deficiency, and with more or less distinct traces of abnormal movements in the arms.

The *second* case is as follows:

Robert M., aged sixteen, is the youngest of eleven children.

When three years old he had a very severe fright, from an old gentleman appearing suddenly out of a barrel like a Jack-in-a-box; this threw him into a succession of fits of convulsions for some hours afterwards; when these ceased, it was found that he was palsied, more particularly on his left side.

He can talk a little, understand what is said to him, and laughs easily, though he suffers from great depression at times. He is generally clean in his habits, though always costive, with furred tongue, offensive breath, and sometimes his motions are involuntary.

The *left* side of his face is slightly rigid, and when he is speaking or laughing, there is some overaction of the muscles on that side.

His *left* arm is in a state of spastic rigidity, the forearm flexed on the elbow, and the fingers flexed. When the spasm is suddenly overcome, a state of clonus ensues. The supinator, biceps, and triceps reflexes can be occasionally obtained. His fingers are in a state of slow, coniform movement when he attempts any particular action. The grasp is weak.

His *right* arm and leg are also spastic, but in a less degree.

His *left* leg is spastically rigid, the foot inverted, the heel elevated.

Ankle- and rectus-clonus are easily got, and the patellar reflex in *both* legs is much exaggerated.

His head is twenty-one inches in circumference, eleven and

one-half inches from the root of nose to the occipital protuberance, and on the *right* side is one-half inch smaller from vertex to the root of the ear.

This, I take it, is a case of *spastic diplegia*, due to a miningal hemorrhage over the surface of the leg- and arm-centres, and probably farther backward in the cortex cerebri on both sides.

He is very weak-minded and helpless, but I think with careful training he might improve a little.

He seems to be very feeble, and if attacked by any acute illness he would probably succumb. Finally, one word as *diagnosis*. This, of course, is chiefly from infantile spinal paralysis. From that these cerebral palsies can be distinguished by the small amount of atrophy, by the warmth of the limb or limbs affected, by the excessive tendon-reflexes and the spastic condition (generally) of the muscles, by the history of the attack, usually connected with a fit of convulsions (uncommon in anterior poliomyelitis), by the epileptoid convulsions which may come on, and by the defective mental condition which occasionally accompanies the paralysis. The electrical reactions again are totally dissimilar in the two kinds of cases.

CONTRIBUTION TO THE SUBJECT OF OPERATIVE TREATMENT OF CHRONIC HYDROCEPHALUS IN CHILDREN.*

BY A. O. KARNITZKY, M.D.,

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THE question of operative treatment in chronic hydrocephalus of children cannot be regarded, at present, as completely solved. Until within a short time, opening of the skull was much more rarely undertaken than now, owing to the generally unfavorable results which were met with. Recently, however, more favorable opinions regarding such operations

* Translated by Francis P. Whittlesey, M.D., Kingston, Jamaica, West Indies.

are expressed. At any rate, as the subject requires further observation and elucidation, my honored teacher, Dr. T. W. Troitzky (privat-docent in diseases of children at the Vladimir University, in Kiew), proposed to me that I report some cases which he had under treatment and which I had myself observed.

There are three ways in which the cure of chronic hydrocephalus in children has been attempted :

1. By treatment directed against inflammatory action.
2. Mechanical pressure on the brain.
3. Operative interference,—paracentesis of the skull.

Nearly all authors agree that the first method is useless in chronic hydrocephalus of children, although Henoch* recommends it when there is reason to believe that the disease is of inflammatory origin.

Much more encouraging results were attained by some authors by mechanical pressure on the skull: thus Engleman† published, in the year 1842, several favorable results obtained by means of pressure on the skull with strips of adhesive plaster. Phillips,‡ in 1857, likewise reported two cases with favorable results, treated by means of pressure on the skull produced by elastic bandages.

Beeley§ collected from the literature on the subject twenty cases from which favorable results were obtained by pressure, although in some the correctness of the diagnosis was not beyond doubt. However, there are a large number of cases of "water on the brain" in which the circumference of the head did not exceed fifty centimetres, which were cured by pressure alone or with the assistance of internal remedies; but in the experience of most writers both methods were without result. Trousseau|| observed even a fatal issue from mechanical pressure, the fluid finding an exit through the nostril.

In the course of years various opinions concerning the value of operative interference in chronic hydrocephalus—

* Henoch, "Lectures on Children's Diseases," pp. 332, 333.

† Engleman [the author has omitted the reference.—TRANSLATOR].

‡ Beeley, "Diseases of the Head in Childhood," Gerhardt's "Manual," vol. vi., 2d ed., Tübingen, 1880, pp. 42-46.

§ Ibid.

|| Ibid.

paracentesis of the skull—have been expressed. Surgeons and pediatricists resorted but unwillingly to the trocar on account of the sad results attained by puncture.

In spite of the attacks of many well-known surgeons and pediatricists, however, the above-mentioned operation has in the past, and is to-day, gaining new adherents. Whatever suggestion the literature of the subject in hand offers us we will summarize in the following pages:

Puncture of the skull was proposed by Hippocrates,* and from his time to the present has been performed by many physicians with varying results. The names of renowned surgeons and pediatricists are found in the ranks of the advocates of the operation, as well as in those of its opponents, Steiner, Descroizilles, A. Vogel, E. Smith, Hüttenbrenner, Barthez and Sauné, Henoch, and others express themselves in opposition. Steiner† declares that puncture of the skull with evacuation was, "after numerous attempts, entirely fruitless." He calls the operation an experiment, and advises its entire abandonment. Descroizilles‡ regards puncture of the skull as a dangerous operation, and counsels its complete avoidance, especially, as in his opinion, not a single fact in the literature of the subject speaks in its favor. Hüttenbrenner§ regards the skull, in relation to operative interference in chronic infantile hydrocephalus, as a *noli me tangere*. Barthez and Sauné advise to abstain from operation, although they point out that puncture is indicated in those cases of hydrocephalus which occur after the acute form of the disease, or after inflammation of the ependyma. They regard the operation as contraindicated in those cases which result from pressure upon the cerebral blood-vessels by any form of new growth. In the latter case puncture of the skull would

* E. Bouchut, "Traité pratique des Maladies des Nouveau-Nés, des Enfants à la Mamelle et de la seconde Enfance," Paris, 1885, pp. 237, 238.

† "Compendium der Kinderkrankheiten," Russian translation, Kiew, 1875, p. 45.

‡ "Manuel de Pathologie et de Clinique Infantiles," Paris, 1873, p. 847.

§ "Lehrbuch der Kinderheilkunde," 2d ed., enlarged and improved, Vienna, 1888, p. 66.

be analogous to puncture of the abdomen in ascites. E. Smith * observes that he never discovered any particular benefit from puncture, as the fluid collected again in equal amount soon after the operation. Henoch † does not advise operating, as a radical cure is not obtained. "However," says he, "any one who is fond of operating may undertake this little operation, as the danger of a resulting meningitis is not great, but one should from the outset be prepared for failure." The noted French pediatricist, Bouchut, ‡ expresses himself uncertainly concerning the operation under discussion. "It were better," he observes, "to give it up entirely, as the children are predestined to an early and certain death, notwithstanding even now attempts are made to secure a favorable issue." He himself has adopted the measure in a few cases, but without success.

Other pediatricists assume the opposite attitude, regarding paracentesis an advance. In their manuals cases of undoubted cure by means of oft-repeated puncture are published. To be sure, the number of observations of operations with a favorable result is relatively small, but even those few successful cases place the operation in a position not absolutely bad.

The most important data concerning paracentesis of the skull we find in the sixth volume of Gerhardt's "Manual of Diseases of Children," in the before-mentioned article of Beeley. Thus Dr. Conquest published nineteen cases of chronic hydrocephalus in childhood, of which he declares ten to have been cured, though Barthéz and Sauné§ regard only three of them as entirely recovered; among the others there was either a lessening of the attacks or a prolongation of life. Death, as a result of the operation, was not determined in a single case.

Battersby || published fourteen cases of puncture of the skull, of which only one was considered cured. Beeley ¶ collected twenty-seven cases of paracentesis, eight of which apparently recovered, as they remained under treatment a whole

* "Practical Treatise of Diseases in Children," 2d ed., New York, 1884, p. 345.

† Lectures, etc., loc. cit., p. 333.

|| Beeley, loc. cit.

‡ Loc. cit.

¶ Ibid.

§ Loc. cit.

year after the operation ; in this series of eight cases there are two which were undoubtedly cured by the injection of iodine into the brain (Tournesco, 1856). The celebrated English pediatricist, Ch. West,* collected fifty-six cases of puncture of the skull, fifteen of which seemed cured, although the author himself could affirm undoubted cure in four cases only. In his opinion it is imperative, when no other remedy avails, to resort to puncture, whereby several ounces of fluid may be at once withdrawn. In the work of the English (*sic*) writers, Meigs and Pepper,† is cited the case of a child, one year old, in whom the operation was performed three times at intervals of from three to six weeks. At the first time sixteen ounces of perfectly clear fluid were withdrawn ; the second, eight ounces, and the third, six ounces. After three operations the effusion did not reappear ; the fontanels quickly closed. Three years after the operation the child was seen again. It was quite healthy, only the head was somewhat large. The same authors mention two cases of Broinard, of Chicago, in which a solution of iodine was injected after puncture, and a cure established. The first child lived eight months, and died of entirely different causes ; the second lived only thirty-five days after the operation. Notwithstanding the injection of iodine, twenty-one times repeated in the course of seven months, no bad results followed. Underwood‡ calls puncture of the skull a bold operation, indeed, yet advises it on account of the indubitably favorable effects which the literature of the subject shows on the one hand, and on the other the dangers of the disease,—convulsions, idiocy, and finally death. Goodhart§ remarks: "I am of the opinion that in such cases paracentesis is worthy of extensive employment in the practice as now conducted ;" but he at once adds that his remarks refer only to those cases in which no remedy

* "Pathologie und Therapie der Kinderkrankheiten," 4th ed., Berlin, 1865, p. 81.

† "A Practical Treatise on the Diseases of Children," London, 1886, p. 558.

‡ "Treatise on the Diseases of Children," London, 1846, p. 376.

§ "On Hydrocephalus." ARCHIVES OF PEDIATRICS, January, 1888, p. 41.

employed had proved of avail. Chotowitzky,* the leading Russian pediatricist, recognized the value of puncture in his manual, published in 1847, and advises its performance with simply a lancet. H. Roger brings forward three cases of puncture of the skull (those of M. Whitney), of which two were considered cured. First, congenital hydrocephalus; after three punctures death intervened. Second, well-marked hydrocephalus. By the first puncture two hundred and seventy-five grammes of fluid were removed; pressure with bandage; three weeks later the second puncture; recovery with retention of intellect. Third, hydrocephalus with idiocy; one puncture and removal of two hundred and fifty grammes of fluid; long-continued pressure; the head attained its normal circumference; the child's strength returned, but the idiocy remained. Roger himself saw some fruitless cases of puncture of the skull in hydrocephalus chronicus. Once he undertook the operation personally, but likewise without success. Regarding the cases of M. Whitney, Roger speaks in these terms: "Par malheur, des faits aussi extraordinaires doivent être tenus en suspicion, et l'on le prend à douter, sinon de la véracité de la l'observateur, du moins de la rigueur de l'observation."† [Freely rendered: "Unfortunately, one must regard extraordinary things with suspicion, and question, if not the truthfulness of the observer, at least the strictness of the observation."—TRANSLATOR.]

Francis T. Miles,‡ the author of the chapter on hydrocephalus chronicus in the recently-published "Cyclopædia of the Diseases of Children," by Keating, recommends puncture of the brain, preferring several repeated punctures with removal of a small quantity of fluid; after a single puncture and the removal of a large quantity of fluid, the latter is apt to collect again very rapidly even if pressure upon the skull is instituted immediately after the operation.

* "Pediatrik." St. Petersburg, 1847, pp. 356, 357.

† "Recherches cliniques sur les Maladies de l'Enfance," tome ii., Paris, 1883, pp. 284, 285.

‡ "Cyclopædia of the Diseases of Children, Medical and Surgical," John M. Keating, Philadelphia, 1890, vol. iv. pp. 477, 478.

Collecting the unfortunately very meagre data concerning the curability of chronic hydrocephalus by operative interference from the literature of the subject, we find only ten cases of unquestionable cure. The melancholy fact of the futility of operative measures in chronic hydrocephalus has led many writers to oppose puncture of the skull. Besides this, in the list of reasons against the operation, many authors point out the danger of meningitis, which, in their opinion, is developed immediately after puncture (Barthez and Sauné, Bouchut, etc.). But if we consider the reports of the advocates of the operation, as well as the course of our five cases detailed below, the danger of the development of a meningitis does not seem particularly great; at least in our cases no inflammatory manifestations were observed soon after the operation.

Shall we, then, practise paracentesis of the skull in chronic hydrocephalus, and in what cases? On the one hand, the cases of spontaneous recovery of the malady by evacuation of the effusion through the nose or the ear (Hugenin* was able to quote six such cases, Haase† one in the year 1818), and, on the other, the cases—small, it is true, in number—of undoubted cure by puncture, collected from writings on this subject,‡ warrant us in resorting to paracentesis of the skull in chronic hydrocephalus when every other form of treatment has failed. By this means, even if a complete cure is not established, the suffering of the child is diminished, and, as a rule, the symptoms develop in a milder degree; besides, an improvement (at least temporary) in the condition of the child—better appetite, sleep, lessened crying—enables the afflicted mother to rest, especially at night. This circumstance is worthy of especial consideration when the child's parents are of the laboring class, to whom such hours of rest are of moment. Regarding the question as to what cases of hydrocephalus chronicus puncture of the skull is to be practised in, writers give various opinions. In the opinion of the majority, puncture is fully indi-

* *Wiener Medicinische Presse*, 1888, October 26, concerning the value of aspiration in hydrocephalus chronicus.

† Beeley, loc. cit.

‡ E. Bouchut, loc. cit.

cated in all cases of hydrocephalus chronicus externus. Henoch confines all cases in which multiple puncture or pressure by adhesive plaster is indicated to hydrocephalus externus. Other writers consider the operation indicated in hydrocephalus chronicus ventricularis when the latter has developed subsequently to acute hydrocephalus or is a sequel of inflammation of the ependyma (Barthez and Sauné, Meigs and Pepper), when the disease is not congenital and when the cerebral functions, in conditions of good nutrition, are not markedly disturbed (Meigs and Pepper). Schoepf Méréi recommends puncture in all those cases in which the symptoms of water on the brain are not far advanced, in children whose sutures are not closed, from three to six months old, and in whom finally, in spite of a large effusion of fluid, no symptoms of collapse or cerebral softening are discernible. In such cases this writer practised puncture, prescribed constantly iodide of potassium and cod-liver oil; externally, the cold douche on the head and moderate pressure with a bandage. By this method he succeeded in saving two of his little patients.

Beeley * believes that in mild degrees of water on the brain, in those cases in which there are no symptoms of cerebral compression, bandaging of the skull should be tried; only when, in spite of this treatment, the circumference of the head increases and symptoms of compression supervene should puncture be done. Paralysis cannot be regarded as a contra-indication, as it improves after puncture. All authorities who favor puncture are unanimous on one point,—viz., that the operation should be performed in every case which assumes the aspect of hydrocephalus chronicus crescendo and the head increases rapidly in circumference.

To show that puncture of the skull ameliorates the complications of hydrocephalus chronicus, I would refer to two cases of Dr. Pfeiffer (from the medical clinic of Professor Mosler, at Greifenwald). Pfeiffer's communication appeared October 26, 1888, in the Vienna medical press, under the title, "The Value of Aspiration in Hydrocephalus Chronicus" ("Ueber den Werth der Methode von Aspiration," etc.). Although in

* Loc. cit.

Pfeiffer's cases puncture only produced a very transient effect (the child was evidently more lively and had a better appetite), the author of the communication recommends it, because, in the first place, a cure has been known to result; and, again, puncture is a method of operative interference which, with proper precaution, will produce no reaction and is easily borne. He is not disposed to attribute to wound-infection the high temperature which in his first case twice reached 40° , as in the first place the wound exhibited no changes and readily healed, and, moreover, the rise was too considerable to be attributed to simple absorption of the secretions of the wound. In his opinion, puncture is especially indicated when compression of the brain occurs.

I now proceed to the description of five cases of puncture of the skull, which was performed by Dr. T. W. Troitzky, privat-docent in diseases of children at Vladimir University, in Kiew. Among them are four which I personally observed, and the fifth is furnished to me by the Hebrew Hospital in Kiew, where Dr. T. W. Troitzky acts as regular consultant.

The first case was treated as a visiting case.

On the 3d of October, 1886, during the regular reception hours, a four-months-old child was brought in markedly emaciated and with an enlarged head. It was submitted to an accurate examination. On the 5th of October attacks of eclampsia occurred three or four times a day. Circumference of the head, forty-six centimetres; breast-measure, thirty-two centimetres. Prescribed *natrii bromati*, 1.20; water, 60. One teaspoonful every two hours. October 7, convulsions more severe. The circumference of the head remained the same. No change in treatment. October 12, convulsions ceased. Circumference of head, forty-seven centimetres. October 19, no seizures; good appetite. Circumference of head, forty-nine centimetres. It was decided to puncture. At the operation three drachms to half an ounce of fluid ran out, whereupon the tension of the membranes and the size of the head gradually diminished. The latter was on December 16 as follows: Circumference, forty-four centimetres; lateral diameter, thirty-one centimetres; longitudinal diameter, thirty-two centimetres; forehead, nine centimetres; between tubera parietalia, eleven

centimetres; vertical diameter, thirteen centimetres; between malar bones, five centimetres; weight of body, twelve and one-half pounds.* January 20, 1887, there was no increase in circumference of the head. A considerable number of points of ossification appeared, scattered irregularly, and giving the surface of the head a somewhat wavy appearance. The punctures were made and only the Hippocratic dressing left, which, moreover, was applied after each puncture (in all thirteen times). Early in March a complication arose with the eruption of the incisors; digestive disorders appeared, and the circumference of the head increased. At the middle of March this was forty-nine centimetres; the lateral diameter, thirty centimetres; the longitudinal, thirty-two and one-half centimetres; the vertical, thirteen centimetres; between the tubera parietalia, thirteen centimetres; forehead, eleven centimetres; lateral diameter of the face, five centimetres. In consequence of the rapid brain enlargement, puncture was again resorted to, whereby two to three ounces of fluid escaped. This was repeated three times, but with merely transient improvement. The circumference of the head increased rapidly, and by the end of March had attained fifty-six centimetres. Spasms appeared, which yielded only to large doses of hydrate of chloral. Soon death supervened with convulsions.

CASE II.—On the 20th of September, 1888, a child, aged one year and four months, was brought to the out-patient clinic. The head measure was fifty-nine centimetres, nutrition pretty satisfactory, appetite good. The parents, simple country people, reported that the signs of water on the brain came on very slowly, without special manifestations. The child was entirely healthy for four months. Then the parents noticed a slow enlargement of the head. As the enlargement progressed so moderately, and the parents were simple peasants, a whole year elapsed from the beginning of the disease before the child was brought to the clinic. The evacuations were regular. The child smiled at times and returned the glances directed towards it by the mother. Iodide and bromide of sodium were ordered, also calomel in small doses.

* The Russian pound has four hundred and ten grammes.

The first puncture was made on September 29. One syringeful of fluid was removed. The second puncture was on October 4. Four syringefuls of a perfectly clear fluid were withdrawn. For the sake of anæsthesia a solution of cocaine was applied at the site of the puncture. After the second puncture, according to the mother, the child felt more lively, took the breast willingly, and slept more quietly at night. On October 15 the third operation was performed in my presence at the residence of Dr. T. W. Troitzky. About three dessertspoonfuls of fluid were removed. The result of head-measurements was : Circumference, fifty-nine centimetres ; lateral diameter, thirty-nine centimetres ; longitudinal diameter of the great fontanel, nine centimetres ; lateral diameter of the same, thirteen centimetres. The fourth puncture followed November 1. One-fourth of a glass of fluid was removed. The circumference of the head was fifty-seven centimetres. The child did not appear again until December 12, on which day the last puncture was made and one-fourth of a glass of fluid withdrawn. Circumference of head is now sixty centimetres, as during the month and a half absence of the child the condition has become markedly worse. The child was highly emaciated and ate nothing. No more punctures were made, as the mother and child left Kiew.

(To be concluded.)

DENTITION AND INFANTILE DISEASE.*

BY A. BROTHERS, B.S., M.D.,

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THE influence of dentition in disturbing the health of infants has been the subject of conflicting opinions in the medical profession for a long time. Not many years ago nearly all of the ailments of infancy occurring during the period of dentition were unhesitatingly attributed to this process. While this rendered the work of diagnosis comparatively easy for the busy practitioner, and flattered the vanity of the elderly dame who confidently announced the diagnosis to the doctor, the progress of scientific medicine discovered a great many other causes for the ills of childhood which have had the effect in recent years of relegating teething to the background. Indeed, a class of physicians, including those highest in the profession, exists who barely recognize the teething process as capable of any pathological influence whatsoever.

The text-books are at variance with each other. Vogel, Ellis, Eustace Smith, and others are powerful advocates of the theory that dentition is responsible for a great many of the ills of infancy. Opposed to this theory are authorities like Jacobi, J. Lewis Smith, Meigs and Pepper, and others, who, while allowing dentition a slight influence, refuse to recognize in it more than a concomitant factor in infantile disease. A few writers, headed by that eminent observer, Henoeh, take a midway stand, and, while acknowledging that dentition has justly been accused of being parent to too extensive a list of diseases, are still firmly convinced that a great many ills can undoubtedly be directly traced to reflex nervous action beginning in the teeth.

The reason for this diversity of opinion is apparent. We have reached a stage of scientific precision where we like to see every pathological change with the naked eye or at least with our microscope. Such changes are not demonstrable in the process of dentition, and hence the class of disbelievers

* Paper read at the Academy of Medicine before the Section on Pediatrics, May 14, 1891.

who deny to dentition any rights of existence as a causative factor of disease. On the other hand, there exists a class of conscientious physicians who study their cases carefully, and from clinical evidence are just as fully convinced of the potency of dentition to disturb the physical equilibrium of the infant. Therefore, the health boards of civilized communities recognize dentition as a cause of death. In New York, while this cause for the death of an infant is admitted, the mode of death is also required. According to West, * in London the mortality due to teething is given as four and eight-tenths per cent. in all children dying under one year old, and seven and three-tenths per cent. in those who died between the ages of twelve months and three years. In the report of the Health Office of the District of Columbia for 1885, George W. Cook † finds sixty-six deaths ascribed to dentition as the primary cause. For my own part, I have never been able to directly attribute a case of death to teething, and I believe I sign as many death-certificates each year as the average practitioner.

With these facts in mind, I have tried to study this subject of dentition from an unbiased stand-point, and for this purpose, during the past year or two, I have made careful notes in regard to about five hundred teething infants which have come under my care in private and dispensary practice. From these written notes, and not from vague impressions,—which seems to be the usual material utilized,—I have prepared the paper which I have the honor to read before you to-night.

Before alluding to its pathology, a few words in regard to normal dentition may not be out of place. In the lower animals we know that certain species, like the lamb and calf, are born with milk-teeth, while others, like the horse, acquire their teeth during the first weeks after birth. This is a perfectly physiological process, but, I understand, may be at times accompanied by fever, indisposition, and other manifestations of disease. In the human being, as early as the fortieth day of foetal life, the first trace of the future tooth can be made out. ‡

* Pepper's "System of Medicine," vii. p. 37.

† *American Journal of Obstetrics*, 1887, xx. p. 580.

‡ Eulenberg's "Real Encyclopädie der Gesamte Heilkunde," 1886, v. p. 207.

In the depression along the line marking the future arch of teeth (the so-called dental groove of Goodsir) lies the epithelial cord which by extension into the future gum furnishes the enamel organ. This organ, from which the future enamel is derived, meets and almost completely envelops, as with a cap, the dentinal papilla, which, in turn, springs from the deep connective tissue of the jaw. The dentinal papilla later becomes the dentine, the chief part of the tooth. The uncovered portion of the dentinal papilla presents a layer of connective tissue which, by a process of envelopment, encapsulates the entire tooth as in a sac, and is therefore called the dental sac. This sac over the root, and a short distance above the gum, later constitutes the cementum, while over the rest of the tooth it forms the peridentinum. The growth of the dental sac upward encroaches upon the original epithelial cord, causing it to atrophy, and thus the connection between the mucous membrane of the mouth and the enamel organ is severed. At this period, about the sixteenth week, the tooth-germ lies enclosed in its follicle. About a week later, calcification of the dentine and enamel begins. When the formation of the crown begins the alveolar partitions develop. The permanent teeth are formed quite early towards the lingual side, being placed lower and more posteriorly than the milk-teeth. The life-history of a middle lower incisor milk-tooth would be thus described: Enamel organ appears at the seventh to eighth week; dentinal papilla at ninth week; follicle wall at tenth week; completion of follicle wall occurs at the beginning of the sixteenth week; eruption of tooth at sixth month; and shedding of the tooth during the seventh year (Legros and Magitot). The pulp of the tooth is practically the dental nerve, and consists of connective tissue with numerous vessels and nerves. It owes its red color to the blood it contains. It represents what is left of the dentinal papilla after the dentine has been formed. The gums contain many blood-vessels, but few nerves, which accounts for free hemorrhage after lancing and the frequency with which painless dentition occurs in infancy and childhood.

In healthy children the usual rule given is that the eruption of the first teeth occurs between the sixth and eighth months.

My experience coincides with this, for in one hundred and seventy-five healthy nursing infants, where this point was sought for, I found six and a half months as the average period of eruption. This rule is, however, normally subject to many exceptions. . In the first place, teeth may be congenitally present in otherwise healthy children. Thus we are informed that Marcus Curius, Richard III., Mirabeau, and Louis XIV. were born with teeth. The only case of this nature of which I have notes is the following :

J. G., female, aged ten months, brought up at the breast ; has five teeth at present ; one of the middle lower incisors was present at birth ; it looks decayed, but seems to be firmly attached to the jaw ; the other teeth did not begin to appear before the child was four and a half months old, following an attack of pneumonia.

I believe Jacobi's explanation of these cases to be correct.*. He ascribes them to periostitis or osteitis of the maxillary bone occurring during intra-uterine life, and in substantiation of this theory I can quote the following case :

J. A. W., female, aged three weeks. Presented a harelip with protruding intermaxillary bone. I operated on the child by partly breaking this bone, forcing it into its proper position, then closing up the pared edges of the lip in front of the bone with harelip pins. At the age of eight weeks, five weeks from the time of operation, an incisor tooth made its appearance in the intermaxillary bone operated on. This was undoubtedly due to inflammatory action set up by the operation on the bone.

Many cases of precocious dentition seem to have absolutely no pathological significance. The following is such a case :

J. D., breast-fed, healthy child, now nineteen months old. At one month he cut his first tooth, and from that time to seven months he cut one tooth each month. From seven to nineteen months, however, he only cut five more teeth, making a total of twelve teeth,—about normal for this age.

* "Intestinal Diseases of Infancy and Childhood," A. Jacobi, 1887 p. 99.

Precocious dentition may occur in families without being evidence of any diseased state of parents or offspring. Here are some examples :

The two healthy children of Mrs. C. began teething at two and a half and three and a half months respectively.

The four children of Mrs. H., two boys and two girls, have all had their first teeth appear between the second and third months.

Mrs. W. has had eight children, of whom four are alive and in apparent good health. In the entire eight the first teeth protruded at three months.

Similarly the eruption of the teeth may be delayed in whole families without apparently being of pathological significance.

Thus, the nine children of Mrs. G., all alive and well, and brought up at the breast, did not begin to teeth before one year.

The two breast-fed children of Mrs. F. only began to teeth at twelve and fourteen months respectively.

The twin children of Mrs. H., at the breast exclusively to ten months, only began to teeth at eleven months.

Although these cases, and I could add many others, may have had constitutional taints which were not at the time sufficiently prominent to be recognized, still I think we are fairly justified in assuming the fact as established that precocious as well as retarded dentition may occur without being indicative of any especial pathological state.

We have seen that the average period of eruption of the first teeth is six and a half months, occurring exceptionally in healthy children as early as one month and as late as thirteen months. The usual situation is the lower jaw, where the middle incisors first appear. In two hundred and three cases I found that forty-four had their first incisors appear in the upper jaw, or twenty-one and a half per cent., which, I believe, is a larger percentage than is usually supposed.

Does sex have any influence in the protrusion of the first teeth? To determine this I selected fifty cases of either sex at random among healthy infants at the breast. In the males the first teeth emerged at six and one-tenth months;

in the females, at six and five-tenths months,—therefore, very little difference, the process becoming slightly later in female children.

Some writers, like Vogel, have divided the process of dentition into five periods, the intervals between representing periods of rest. These periods represent the existence of a certain number of teeth. These are Vogel's results,—

4 to 7 months	.....	2 teeth.
8 to 10	“	6 “
12 to 15	“	12 “
18 to 24	“	16 “
30 to 36	“	20 “

My own results, using these same periods in healthy children, are somewhat different. They are,—

4 to 7 months	.....	2 teeth (18 cases).
8 to 10	“	4 to 5 “ (50 “).
12 to 15	“	9 “ (58 “).
18 to 24	“	15 “ (34 “).
30 to 36	“	20 “

Having determined upon a standard for the normal eruption of the first teeth and for the subsequent progress of dentition, it became a question of interest to determine what effect artificial and mixed feeding, as well as the various diseased states of infancy, would have in disturbing this process.

Under the heading “mixed feeding” I have included those children who received other food besides the breast from a period preceding the eruption of the first teeth. In sixty-one cases studied, the average period of eruption of the first teeth was eight and a quarter months, but there were many cases of precocious as well as delayed dentition. The subjoined table shows the effect of mixed feeding on the later teeth :

4 to 10 months	.....	3 teeth (19 cases).
12 to 15	“	8 “ (26 “).
18 to 24	“	12 to 13 “ (16 “).

In all of this class, whether the first teeth came early or not, the effect on the later teeth was marked. There was a

very distinct delay. So that the number of teeth at the period decided on was below the normal.

Under the heading "artificial feeding" I have included those children deprived of the mother's breast from a period antedating the sixth month. In this class the first teeth emerged on the average (in twenty-three cases) at eight months. The later months showed the following results:

4 to 10 months	3 teeth (6 cases).
12 to 15 "	6 " (8 ").
18 to 24 "	12 " (3 ").

Here, again, the first teeth appeared exceptionally as early as two months or as late as sixteen months. The eruption of the later teeth was, however, very distinctly delayed to a further degree than in the children under a mixed diet. For purposes of comparison I subjoin the following table:

Age.	No. of teeth in breast-fed.	No. in "mixed."	No. in "artificially-fed."
4 to 10 months.....	3	3	3
12 to 15 "	9	8	6
18 to 24 "	15	12 to 13	12

Therefore, those children whose food is mixed or artificial show a distinct delay in dentition, the artificially-fed more so than those not entirely deprived of the breast.

My attention was next directed to the influence of disease, congenital or acquired, on the beginning and progress of dentition. And here I wish to apologize for the paucity of my data to solve this interesting problem. I will give my results, however, as I have found them.

First, What effect has congenital disease in influencing dentition? In my series I have three cases of premature ossification of the skull with closure of the anterior fontanel. In these the first teeth emerged at six, seven, and twelve months respectively,—an average of eight and one-third months. In four cases of congenital valvular disease of the heart, the average period of first eruption was ten and one-tenth months, with extremes of eight and fifteen months,—hence a very distinct delay. I have only eight cases of congenital syphilis to utilize. In them the first teeth emerged

between five and ten months, the average being seven and three-fourths months. In the eruption of the later teeth, however, these cases all showed a distinct delay. I have notes of eight cases of children which I have classed as tuberculous in whom there was marked evidence of the disease or who were nursing at the breast of women with advanced phthisis. In them the average period of eruption of the first teeth was seven and six-tenths months, with extremes of five and nine and a half months. The later progress of dentition in these cases was distinctly delayed. This corresponds with the observation of that astute clinician, Trousseau, who many years ago recognized in late dentition an evidence of tuberculosis.

Children affected with retarded mental development (idiots) due to chronic meningitis, meningo-encephalitis, cerebral thrombosis, etc., have a pronounced tendency to delayed dentition. In thirteen such cases, the first teeth were retarded to ten and one-half months, and the later teeth, from the few data at my disposal, seemed to be similarly delayed.

Effect of Congenital Diseases on the Eruption of the Teeth.

Disease.	Period of eruption of first teeth.	Influence of later teeth.
Premature ossification of skull..	8½ months.	.....
Valvular disease of heart.....	10 $\frac{1}{10}$ "	.....
Syphilis.....	7 $\frac{3}{4}$ "	Delayed.
Tuberculosis.....	7 $\frac{6}{10}$ "	Delayed.
Cerebral diseases.....	10½ "	Delayed.

Secondly, What effect do diseases, acquired during infancy, have on the beginning and subsequent progress of dentition? The most important and frequent of these acquired diseases is undoubtedly rachitis. It is a well-known fact that this disease has a markedly retarding influence on dentition. My list embraces nearly fifty well-marked cases. In a few teething began between three and a half and seven months, but nearly one-half the cases did not begin to teeth before a year, and in one girl the process was delayed to twenty-four months. The average period of eruption of the first teeth was somewhat later than ten and a half months. There

was also a very marked delay in the eruption of the later teeth. Thus:

4 to 10 months.....	1 tooth (14 cases).
12 to 15 " 	5 teeth (19 ").
18 to 24 " 	11 " (11 ").

Under the heading "scrofulosis" I have included those children suffering from abscesses, skin eruptions, enlarged lymphatics, and catarrhal disorders. These cases all show a tendency towards precocity in the eruption of the first teeth, which, on the average emerge at six months (eighteen cases). The subsequent progress of dentition in my cases seemed to very closely follow the normal. Thus:

4 to 10 months.....	3 teeth (9 cases).
12 to 15 " 	8 " (4 ").
18 to 24 " 	14 " (3 ").

What effect have chronic diseases on dentition? To solve this point I have grouped together cases of bronchitis, gastroenteritis, whooping-cough, and malaria. In fourteen cases I found the eruption of the first teeth delayed to nine months. This corresponds with the same observation made by Wendt. I could find, however, no perceptible influence on the later teeth. Thus:

4 to 10 months.....	3 teeth (7 cases).
12 to 15 " 	8 " (4 ").
18 to 24 " 	17 " (5 ").

In five cases in which epilepsy began in early childhood the first teeth protruded as early as six and a third months. This is in marked contrast to the delayed dentition just noticed in children suffering from other cerebral disorders. Madame Alice Solier,* after a study of sixty cases of idiocy, found the process of dentition only very slightly affected, but as she includes cases of epilepsy, the result is not as valuable as if these cases were looked at separately.

In eight children suffering from marasmus there was a

* *Le Concours Méd.*, February 25, 1888; ARCHIVES OF PEDIATRICS, August, 1888, p. 505.

decided tendency to precocious dentition,—the average period of eruption being five months. The further progress of eruption was, however, in these cases, slightly delayed.

Acquired Diseases showing Period of Eruption of First Teeth, etc.

Disease.	Period of eruption, first teeth.	Later progress of dentition.
Rachitis.....	10½ months.	Distinctly delayed.
Scrofulosis.....	6 “	Normal.
Chronic diseases.....	9 “	Normal.
Epilepsy.....	6½ “	.....
Marasmus.....	5 “	Slightly delayed.

Having thus noticed the various influences retarding or hastening the process of dentition, the next important question would be, How far does the process of dentition itself tend to induce disease in the infant organism? This question has been examined into over and over again, and has been the cause of much dispute among careful observers. While I frankly confess that, in my experience, at the present day the influence of teething is very much exaggerated, still I cannot join ranks with those who deny it any place whatsoever. Thus one eminent authority on pediatrics, whose opinions I profoundly respect, has come to the conclusion that stomatitis is very exceptionally due to dentition. From this view I dissent, for I very frequently see swelled gums, catarrhal stomatitis, and even aphthæ. In some cases I have seen small pustules on protruding teeth giving rise to a great deal of disturbance which would subside on lancing.

Do teething children suffer pain or neuralgia? The anatomy of the gums shows a marked scarcity of nervous filaments, and so frequently are new teeth discovered accidentally, as it were, that the teething process is practically a painless one in most children. Still, the oft-observed crossness of children, which disappears with the emergence of a new tooth, is fairly attributable to neuralgic pain. In a few cases I have records in which a pain referred to one ear or even a discharge appeared to occur simultaneously with the eruption of successive teeth. To go beyond this and claim with Vogel* that

* Ziemssen's "Handbuch der Spec. Path. u. Therap.," vol. vii., i. p. 36.

"the excess of salivation occurring during dentition is good as a preventative of brain symptoms and intestinal catarrh," is, I believe, an axiom which none of us is willing to concede.

Do children have demonstrable fever with new teeth? As a rule they do not. I have frequently measured the temperature of such "feverish" children and not found any rise. Occasionally I have met a case with fever.

Baby W., aged nine months; still at the breast. Two lower middle incisor teeth recently emerged without difficulty. About 2 A.M. became feverish and restless. At noon next morning had a rectal temperature of 104°. No errors of diet or evidence of disease discoverable. A middle upper incisor was found cutting its way through the gum. In forty-eight hours the tooth had completely emerged and the child was perfectly well. Very little treatment was resorted to.

Still it is risky to attribute fevers to dentition, for, by a hasty decision, a beginning pneumonia or other febrile disease may be overlooked.

How far can brain symptoms properly be attributed to dentition? We hear a good deal about convulsions and meningitis being due to teething. This is an easy escape from a diagnosis in most children, between the ages of six months and three years, who happen to have convulsions or meningeal symptoms. For my own part, I have never been able to locate the origin of a meningitis in the teeth. In one or two instances, in my experience, where a mother insisted that the difficult cutting of a tooth was the cause of the meningitic symptoms, I have allowed myself to lance the gum,—which, under all circumstances, I regard as a trivial procedure,—but the progress of the disease was not checked. Therefore, as my incision failed to relieve the meningeal disease, I could see no connection between the teething process and the inflamed meninges.

In regard to convulsions pure and simple, I cannot be so positive. We know how easily convulsions are produced in childhood by slight causes. Henoch* relates the case of a

* Henoch, "Lectures on Diseases of Children," Wood & Co., N. Y., 1882.

child biting the nipple and, at the sudden outcry of the mother, going into a convulsion. Another baby, of ten months, had a lobster's eye introduced into his own for the purpose of removing a foreign body. This became encysted in the lachrymal sac, and, as a result of this irritation, the child had epileptic attacks almost daily for six days. On removing the foreign body the spasms ceased at once.* Then why should we deny the possibility of difficult dentition to induce convulsions at times? That this is of exceptional occurrence I readily admit, but that it does occur I believe the next case fairly proves.

A. G., aged thirteen months, has two upper and two lower median incisor teeth, which have come through since the ninth month without difficulty. Has been at the breast exclusively to seven months, and since then gets a little light nourishment in addition. Never sick until yesterday, when it developed a little fever, and at 9 P.M. passed into a general convulsion, lasting twenty minutes. To-day its rectal temperature is 101° F. The sharp edges of two upper lateral incisors are now felt for the first time by the mother, who is quite intelligent and particularly solicitous of this her only child. They were certainly not there on the previous day. On the following day the child was well and has remained so since.

The paralysis of dentition described by Ellis,† and said to occur especially during the eruption of the molar teeth, I have never met with.

According to Vogel, "there is a blennorrhagic affection of the conjunctiva palpebrarum, which occurs at the eruption of the upper cuspid and incisor teeth. Here both eyelids, particularly the upper, suddenly swell up and become so infiltrated that it is only with the utmost difficulty, and scarcely ever without bleeding from the squeezed eyelid, that a sight can be obtained of the globe. The discharge is not so yellow and purulently thick as in ophthalmic blennorrhœa neonatorum. . . . On examining the mouth of a child laboring under this

* *Rev. Mens. des Mal. de l'Enf.*, January, 1889; ARCHIVES OF PEDIATRICS, April, 1890, p. 325.

† Ellis, "Diseases of Children," New York, 1879.

form of inflammation of the eye, a painful redness and swelling of the corresponding upper jaw, and one or two tubercles answering to the first molar or incisor tooth will be found." With the fullest respect for this conscientious and esteemed author, I would say that careful observation during the past five years has failed to convince me that I ever saw a case of eye-trouble attributable to the teeth, and that I regard the explanation of Vogel, referring the disorder to a propagation of congestion or inflammation along the Highmorian cavity from the tooth to the eye, as superfluous. The treatment, it is furthermore worth noting, he directs locally to the eye and not to the tooth.

Inflammation and neuralgia of the ear have similarly been attributed to dentition. According to J. Solis-Cohen,* at the Jefferson Medical College Hospital, fully one-third of all the cases of otorrhœa are said to follow dentition in scrofulous children. I have also seen scrofulous children with such discharges which the mother would claim were set up fresh with each tooth. But would it not be more reasonable to attribute the discharge from the ear to the scrofulous taint and not to the dentition?

Do inflammations of the upper air-tract—nose, pharynx, larynx—depend on dental irritation? My experience does not sanction such a relationship. The infectious diseases with lesions in the throat, such as diphtheria, measles, and scarlatina, seem, according to one writer (J. Comby †) to be less dangerous during dentition than before, and teething children do not seem to be more prone to acquire these diseases than other children.

Bronchitis and pneumonia have been freely attributed to dentition. The older explanations of reflex irritation through the pneumogastric nerve and the chilling of the chest by dribbling saliva are rather far-fetched, and it has been pointed out, in regard to the latter explanation, that children begin to dribble for several months before dentition begins without being particularly susceptible to these affections. According

* Pepper's "System of Medicine," ii. p. 37.

† *Arch. Gén. de Méd.*, 1888, i. p. 166.

to A. Jacobi, infants are more exposed to atmospheric changes during the second year, and the prevalence of rachitis with swollen cervical and mediastinal glands renders them liable to catching cold. Personally, I have never been able to trace a case of chest affection directly to dentition.

Vogel, Ellis, and others claim that a moderate amount of diarrhoea during dentition is physiological, and is caused by the swallowing of the saliva with its salts. Another theory has attributed such diarrhoea to reflex irritation of the splanchnic nerve. With such a diarrhoea, it is claimed, you will never get brain symptoms. Therefore you are warned not to check it, and Ellis adds that "astringents do harm nine times out of ten." What teaching could be more pernicious, and who can begin to estimate the number of lives sacrificed by it? We all know that diarrhoea in infants is a very infrequent disease in winter, and when it does occur it can usually be directly traced to faulty feeding. Eustace Smith claims that the impairment of digestion is due to febrile irritation set up by the advancing tooth. But why does this cause only seem to act during the summer and not the winter months? At the present day, imperfect as our knowledge still is, we are all tolerably agreed that summer diarrhoeas owe their origin chiefly to micro-organisms in the gastro-intestinal tract and not to teething. The amount of public credulity regarding the influence of teething can only be fully appreciated by those of us who have practised among the poorer and most ignorant classes. Still, where is the physician who will hesitate to control a diarrhoea hampered by the fear of inducing a convulsion? I have certainly never hesitated myself, and I have never known a convulsion to follow such interference. I am sure, however, that I have saved many an infant's life by checking a diarrhoea in its earliest stage, either by food-regulation alone or assisted by medication. The following case will illustrate how easily one may be led to attribute diarrhoea to teething:

B. S., rachitic baby of twelve months; at the breast with other food since third month, without teeth; was suffering from diarrhoea for four weeks. Mild astringents were followed by partial relief only. About this time the mother called my

attention to two lateral incisor teeth which for three months seemed to be on the point of cutting through. Thinking this might have some influence in keeping up the diarrhoea, I lanced the gums over both teeth. Several days later the teeth were nicely through, but the diarrhoea was positively not checked in the least. It required several weeks of careful local treatment to get the intestine back to its natural state.

According to the authorities, skin-diseases are markedly influenced by dentition. Although I see a great many cases of skin-diseases in children each year, I have not been able to trace any relation to dentition. Vogel seriously affirms that at each of the five periods of dentition certain cases of skin-disease are apt to have a fresh start. Here again my observation is at fault, for I do not recall ever having met a case of obstinate skin-disease in childhood which showed any such dependence on dentition.

Having thus given my personal experience with dentition in its relation to the maladies of infancy, a few words on lancing may not be out of place. One of our most prominent professors of pediatrics has publicly stated that in five years he has had recourse to lancing twice. How different from a few years ago when lancing was a universal practice! There are, in my opinion, some indications for lancing the gums. Thus, a case with a pustule on the gum over the protruding tooth, or a tooth which for a long time seems on the point of cutting in an irritable infant, are proper cases for lancing. Other diseases, like bronchitis, pneumonia, gastro-enteritis, rickets, and chronic diseases generally, do not call for interference. As the operation is absolutely safe and simple, a suspicious case of convulsions with evidence of an emerging tooth would justify a lancing, even if nothing beyond the relief of tension to the gum was gained.

The pendulum of medical opinion, having swung from the one extreme of ascribing to dentition every ill of infancy to the opposite extreme of denying to dentition any rights whatsoever, has now begun to approach its centre of rest at a point midway. We are not attributing every ailment of childhood to the teeth. We simply recognize in dentition one of a great

many factors which may disturb the delicate mechanism of the infant organism.

In conclusion, allow me briefly to summarize what I have endeavored to make clear in the body of this paper :

1. Dentition is rarely, if ever, a direct cause of death.
2. Precocious or retarded dentition may occur in otherwise healthy children or in entire families.
3. The period of eruption of the first teeth occurs, in healthy, breast-fed children, at six and a half months in the vast majority of cases, and first dentition is usually complete at thirty months.
4. Dentition is distinctly retarded in the first as well as the later teeth in children brought up on mixed or artificial diet.
5. Congenital diseases—tuberculosis, syphilis, endocarditis—seem to have a retarding influence on dentition.
6. Rachitis has a very pronounced retarding influence on the whole course of dentition.
7. Scrofulosis seems to hasten the eruption of the first teeth, but does not affect the later teeth.
8. In cases of undeveloped brain—idiocy—there is a marked retardation during the entire period of dentition.
9. Chronic diseases have a retarding power over the first teeth, but do not seem to influence the later teeth.
10. Children suffering from marasmus seem to be precocious with the first teeth, but delayed with the later teeth.
11. Cases of epilepsy, developing in early infancy, seem to have their first teeth appear early.

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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(Continued from July number.)

A. THE NOSE.

DISEASES OF THE NOSE.

4. *Neoplasms of the Nose.*

DERIVATION.—*Néος*, new; *πλάσμα*, a growth.

SYNONYMES.—1. Tumors of the nose.

2. Growths of the nose.

3. Nasal tumors.

DEFINITION.—Hyperplasia and new formation of tissue within the nasal cavities, giving rise to growths of various sizes and of degrees of malignancy, varying according to their histological bases.

VARIETIES.—1. Benign.

2. Malignant.

(1) BENIGN NEOPLASMS OF THE NOSE.

DEFINITION.—Growths of the nasal passages which are not of themselves, or because of any inherent quality, obnoxious to life, and are not productive of a cachectic condition of the system, but which are capable of giving rise to a fatal termination from mechanical causes, such as excessive size or pressure upon surrounding vital structures.

VARIETIES.—

1. Adenoma.

2. Angioma.

3. Dermoid cyst.

4. Enchondroma.

5. Exostoses.

6. Fibroma.

7. Myxoma.

8. Osteoma.

9. Papilloma.

a. Adenoma of the Nose.

DERIVATION.—*Ἀδὴν*, a gland; *ωμα*, a tumor.

DEFINITION.—A very rare growth of the nasal passages, consisting, histologically, in an hypertrophy of the true glandular structure of the nasal mucous membrane, and characterized by a very pronounced tendency to epitheliomatous degeneration.

SYMPTOMS.—

- | | | | |
|-----------|---|-----------|---|
| 1. Local. | { | (1) Nose. | a. Respiration obstructed, partially or completely, oral. |
| | | | b. Sneezing frequent; frequent attacks of coryza. |
| | | | c. Discharge profuse, watery, mucous, odorless. |
| | | | d. Presence of tumor; consistency firm. |
| | | | e. Growth slow. |
| | | | f. Size often great. |

DURATION.—Uncertain.

DIAGNOSIS.—Plain. By the microscope.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*
 a. By snare.
 b. By *écraseur*.

b. Angioma of the Nose.

DERIVATION.—*Ἀγγεῖον*, a vessel.

SYNONYMES.—1. *Nævus* of the nose.

 2. Erectile tumor of the nose.

 3. Vascular tumor of the nose.

 4. Angioma cavernosa narium.

 5. Fibro-angioma of the nose.

DEFINITION.—A rare growth of the nasal mucous membrane, which is characterized histologically by an hypertrophy or hyperplasia of the erectile tissue of the nose, and clinically by the presence of a pulsating, vascular tumor, attended with frequent and severe hemorrhages, most frequently met with among males, and in early life.

ETIOLOGY.—1. *Predisposing causes.*

 (1) Sex, male.

 (2) Early life.

2. *Exciting cause.*

 (1) Some disturbance in the process of the nutrition of the vascular walls (*Bosworth*).

PATHOLOGY.—

- | | | | |
|------------------------|---|-------------------|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Nose.</i> | <i>a.</i> Mucous membrane inflamed, containing the growth. |
| | | | (<i>a</i>) <i>Surface.</i> Irregularly rounded, easily indented with a probe. |
| | | | (<i>b</i>) <i>Color.</i> Reddish, purple. |
| | | | (<i>c</i>) <i>Origin.</i> <i>a.</i> Upper portion of nasal fossæ (<i>usual</i>).
<i>β.</i> Cartilaginous septum (<i>rare</i>).
<i>γ.</i> Middle turbinated bone (<i>rare</i>).
(<i>d</i>) <i>Attachment.</i> Sessile. |
| | | | |
| 2. <i>Microscopic.</i> | { | (1) <i>Tumor.</i> | <i>a.</i> Excess of dilated blood-vessels.
<i>b.</i> Slight net-work of connective tissue. |

SYMPTOMS.—

- | | | | |
|------------------|---|------------------|--|
| 1. <i>Local.</i> | { | (1) <i>Nose.</i> | <i>a.</i> Respiration obstructed. |
| | | | <i>b.</i> Epistaxis persistent, profuse. |
| | | | <i>c.</i> Presence of tumor, pulsating, as recognized by the finger. |
| | | | <i>d.</i> Growth slow. |

DURATION.—Uncertain: two to five years.

DIAGNOSIS.—Plain. By the microscope.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*
 a. Jarvis's cold-wire *écraseur*.
 b. Galvano-cautery.
 c. Dermoid Cyst of the Nose.

DERIVATION.—*Δέρμα*, the skin; *εἶδος*, form.

SYNONYME.—Embryonal cyst of the nose.

DEFINITION.—A rare congenital tumor of the nasal fossæ, consisting of a limiting or cyst wall, with contents composed of fragments of embryonal tissue,—portions of hair, cartilage, bone, teeth, fat, connective tissue, and glandular substance.

ETIOLOGY.—Excessive development of embryonal tissue.

PATHOLOGY.—

1. *Macroscopic.* { (1) *Nose.* a. Presence of tumor.
(a) *Origin.* a. Septum.
β. Inferior turbinated bone.

SYMPTOMS.—

- | | | | |
|------------------|---|------------------|--|
| | { | (1) <i>Nose.</i> | <i>a.</i> Respiration obstructed. |
| | | | <i>b.</i> Discharge mucous. |
| | | | <i>c.</i> Anosmia complete. |
| | | | <i>d.</i> Epistaxis. |
| 1. <i>Local.</i> | | | <i>e.</i> Pain neuralgic. |
| | | | <i>f.</i> Sneezing frequent; frequent coryzas. |
| | | | <i>g.</i> Sensation of itching marked. |
| | | | <i>h.</i> Presence of tumor. |
| | | | <i>i.</i> Growth slow, progressive. |

DURATION.—Indefinite.

DIAGNOSIS.—Plain. By the microscope.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*
(2) Incision and application of galvano-cautery.

d. Enchondroma of the Nose.

DERIVATION.—'Εν, in; χόνδρος, cartilage.

SYNONYMES.—1. Cartilaginous tumor of the nose.

2. Chondroma of the nose.

3. **Ecchondroma of the nose.**

DEFINITION.—A very rare growth of the nasal fossæ belonging exclusively to the period of adolescence, and characterized histologically by an excessive development and new formation of dense, hyaline cartilage.

ETIOLOGY.—1. *Predisposing causes.*

(1) Period of adolescence, eleven to seventeen years.

(2) Sex, male.

2. *Exciting cause.* Indefinite.

PATHOLOGY.

- (1) *Nose.* *a.* Presence of tumor.
 (*a*) *Size.* Grain of corn (*usual*),
 may be larger.
 (*b*) *Surface.* Round, irregularly
 nodulated, very dense.
 (*c*) *Color.* Yellowish-pink.
 (*d*) *Origin.* *a.* Cartilaginous sep-
 tum (*usual*).
 β. Outer nasal wall
 (*rare*).
 γ. Roof of nose (*rare*).
 (*e*) *Attachment.* Sessile.
1. *Macroscopic.*
- (1) *Tumor.* Hyaline cartilage.
 (2) *Capsule.* *a.* White fibrous connective tissue.
 b. Yellow elastic tissue (*small amount*).
2. *Microscopic.*

SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Respiration obstructed.
b. Discharge muco-purulent, at times offensive.
c. Pain absent.
d. Deformity marked, "frog-face."
e. Presence of a tumor.
f. Growth slow.
(2) *Mouth.* Cough dry, hacking.

DURATION.—Long.

DIAGNOSIS.—Plain. By the microscope.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*

a. By the knife.

b. By the cold snare.

c. By the galvano-caustic loop.

d. By the curette.

e. By the gouge.

e. Exostoses of the Nose.

DERIVATION.—Ἔξ, out of; ὀστέον, bone.

DEFINITION.—A congenital condition of considerable rarity, consisting in the presence of outgrowths or protuberances from the bony framework of the nose, obstructing the lumen of the nasal fossæ, and giving rise to a degree of nasal stenosis, varying with the size of the tumor, together with a concomitant train of symptoms. (*Vide Chronic Nasal Stenosis.*)

f. Fibroma of the Nose.

DERIVATION.—*Fibra*, filament.

SYNONYMES.—1. Fibrous tumor of the nose.

2. Fibrous polyp of the nose.

DEFINITION.—A growth of the nasal fossæ of considerable frequency, confined to the period of adolescence and early adult age, and characterized by an excessive development of fibrous tissue with numerous prolongations, extending frequently into the pharynx, accompanied by a train of characteristic symptoms, often attaining an enormous size, with resulting grave deformity and death, if not removed by surgical procedures, and showing a marked tendency to degenerate into sarcomatous tissue.

ETIOLOGY.—1. *Predisposing causes.*

(1) Adolescence and early adult age, fifteenth to thirtieth year.

(2) Male sex.

2. *Exciting cause.*

(1) Mechanical irritation.

PATHOLOGY.—

1. *Macroscopic.*

(1) *Nose.* a. Presence of tumor, generally single, occasionally multiple.

(a) *Size.* Often immense.

(b) *Surface.* Irregularly rounded or lobulated, smooth, glistening, with prominent blood-vessels (*occasional*), dense, hard, resisting, non-hygrometric, with numerous prolongations forward into anterior nares and backward into pharynx.

(c) *Color.* Reddish-pink, or whitish.

(d) *Origin.* a. Upper portion of nasal cavity (*usual*).

(1) The ethmoid.

(2) Superior turbinated bone.

β. Floor of nose (*Dixon, Ingals, Pepinster*).

γ. Septum (*Dolbeav, Fischer*).

(e) *Attachment.* Sessile (*usual*); firmly embedded, not yielding on pressure; immobile.

2. *Microscopic.* { (1) *Tumor.* a. Basement membrane, finely granular, homogeneous.
b. Fibrous tissue, dense net-work.
c. Cells in meshes, spindle-shaped, stellate.
d. Nerve-tissue absent.
e. Blood-vessels enlarged, dilated.
f. Degeneration in spots, sarcomatous (*occasional*).

SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Respiration obstructed, oral (*late stage*).
b. Discharge muco-purulent, profuse, mixed with blood and clots, odorless.
c. Epistaxis very common, persistent, profuse.
d. Anosmia complete.
e. Pain absent at first; present in late stage from pressure; never prominent.
f. Presence of tumor or tumors.
g. Growth slow, relentless, progressive, crowding tissues before it.
h. Deformity in late stage, "frog-face," spreading of nasal bones with apparent flattening of ridge.
(2) *Pharynx.* Deglutition interfered with from extension into naso-pharynx (*occasional*).
(3) *Ears.* Hearing slightly impaired.
(4) *Eyes.* Exophthalmos (*occasional*).
2. *General.* Headache, frontal.

DURATION.—Long.

DIAGNOSIS.—From posterior nasal hypertrophy.

Fibrous Polyp.

1. Surface smooth, irregularly rounded or lobulated, glistening.
2. Blood-vessels may occasionally be seen coursing over the surface.
3. Color usually reddish-pink; may be whitish.
4. Usually sessile.
5. Always unilateral.
6. Pressure with a probe reveals a hard, dense, resisting growth, immobile, or but slightly movable.
7. Frequently sends prolongations into the anterior nares and pharynx.
8. Epistaxis frequent and persistent.
9. Nasal discharge muco-purulent, profuse, mixed with blood and clots.
10. Unattended with any hypertrophy of the pharyngeal tissues.

Posterior Nasal Hypertrophy.

1. Mucous membrane smooth, non-lobulated, not glistening.
2. Venous sinuses always numerous and large.
3. Color dark brownish-purple, or light yellowish-pink.
4. Usually has short pedicle-like attachment.
5. Always bilateral.
6. Pressure reveals a hard, bony foundation under an hypertrophied mucous surface.
7. No prolongation.
8. Epistaxis rare.
9. Nasal discharge watery or slimy, profuse.
10. Accompanied with an hypertrophy of the adenoid tissue in the pharyngeal vault.

- | | |
|--|--|
| <p>11. Cocaine has no effect upon the size of the tumor.</p> <p>12. Growth relentless, and attended in advanced stage with pronounced external deformity, and occasional exophthalmos.</p> | <p>11. The application of cocaine produces a retraction of the hypertrophied tissue.</p> <p>12. Growth non-progressive, and attended with comparatively slight broadening of the nasal bridge.</p> |
|--|--|

PROGNOSIS.—Fatal, if neglected. Good, if properly treated.

TREATMENT.—1. *Surgical.* (1) *To reduce size.*
 a. Electrolysis (*Ingals*).
 b. Galvano-cautery knife to remove pieces (*Casselberry*).
 (2) *Extirpation.*
 a. Cold-wire snare (*number 5, steel piano-wire, or larger*).
 b. Galvano-cautery écraseur.

g. Myxoma of the Nose.

DERIVATION.—*Múḡa*, mucus.

SYNONYMS.—

- | | |
|---|---|
| <p>1. Nasal polyp.</p> <p>2. Mucous polyp.</p> <p>3. Gelatinous polyp.</p> <p>4. Cystoid polyp.</p> | <p>5. Polypus nasi.</p> <p>6. Polypos du nez (<i>French</i>).</p> <p>7. Nasenpolypen (<i>German</i>).</p> <p>8. Polipi del naso (<i>Italian</i>).</p> |
|---|---|

DEFINITION.—A new formation of the nasal mucous membrane, either congenital or acquired, but occurring most frequently among males after the fifteenth year, and largely composed of myxomatous tissue, though at times containing in addition a small amount of fibro-cellular tissue.

VARIETIES.—1. Mucous or gelatinous (*common*).
 2. Cystoid (*rare. Seiler*).

ETIOLOGY.—1. *Predisposing causes.*

- | | | |
|---|---|------------------------|
| <p>(1) Male sex.</p> <p>(2) Age, youth.</p> <p>(3) Heredity</p> <p>(4) Strumous diathesis</p> | } | (<i>not proven</i>). |
|---|---|------------------------|

2. *Exciting causes.*

- | |
|--|
| <p>(1) Mechanical irritation.</p> <p>(2) Serous exosmosis (<i>result of the respiratory function of the nose. Bosworth</i>).</p> |
|--|

PATHOLOGY.—

- | | | |
|-------------------------------|---|---|
| <p>1. <i>Macroscopic.</i></p> | { | <p>(1) <i>Nose.</i> <i>a.</i> Mucous membrane congested, reddened, slightly inflamed.
 <i>b.</i> Presence of multiple tumors.
 (<i>a</i>) <i>Size.</i> Small bean to acorn or larger.
 (<i>b</i>) <i>Shape.</i> <i>a.</i> Round.
 <i>β.</i> Oval.
 <i>γ.</i> Pyriform.
 (<i>c</i>) <i>Surface.</i> Soft, smooth, shining, semi-transparent, highly hygro-metric.
 (<i>d</i>) <i>Color.</i> Pale, pinkish.</p> |
|-------------------------------|---|---|

1. *Macroscopic*
(continued).
- (e) *Origin.* a. Middle turbinated body and middle meatus (*common*).
 β. Superior turbinated body and superior meatus.
 γ. Septum (*rare*).
 δ. Antrum of Highmore (*rare*).
 (f) *Attachment.* Pedunculated.
 c. Presence of cysts.
 (a) *Size.* Large.
 (b) *Surface.* Soft, cystic (*containing thin, watery mucus*), covered with epithelium.
 (c) *Origin.* Lower border of inferior turbinated body.
2. *Microscopic.*
- (1) *Tumors.* a. *Capsule.* (a) Epithelium ciliated, columnar.
 (b) Epithelium beneath, stratified.
 (c) Capillaries dilated.
 (d) Nervous tissue absent.
 b. *Tumor.* (a) Embryonic connective tissue.
 (b) Mucin.
 (c) Muscular tissue, small amount.
 (d) Cells. a. Round } (*early*) } (1) Nucleated.
 β. Oval } (*stage*) }
 γ. Stellate } (*late*) } (2) Granular.
 δ. Fusiform } (*stage*) }
 (e) Cysts occasional.
 (f) Degeneration telangiectatic (*occasional*).

SYMPTOMS.—

1. *Local.*
- (1) *Nose.* a. Respiration obstructed, oral; asthmatic attacks (*late stage*).
 b. Discharge, *first stage*, mucous, watery, profuse, grayish, semi-transparent; *late stage*, purulent, profuse, bright-yellow, odorless.
 c. Sneezing, frequent violent attacks; frequent acute coryzas.
 d. Anosmia partial or complete.
 e. Epistaxis occasional.
 f. Presence of tumors non-sensitive, slow growth, recurring.
 g. Nostrils, burning and itching sensation.
 h. Nasal canal obstructed (*occasional*).
 i. Deformity, thickening of nasal bridge.
 (2) *Mouth.* a. Voice peculiar, dead, faintly nasal.
 b. Articulation impaired.
 c. Sense of taste blunted or lost.
 d. Cough reflex, dry, irritating.
 (3) *Ears.* a. Chronic otorrhœa } (*occasional*), from obstruction of Eustachian tube.
 b. Tinnitus aurium }
2. *General.*
- (1) Malaise general (*at times*), languor, indisposition.
 (2) Headache, hemicrania; supraorbital neuralgia.
 (3) Disturbance of mental processes.
 (4) Vertigo (*occasional*).

DURATION.—Indefinite.

- SEQUELÆ.**—1. *Local.* (1) Chronic coryza.
 (2) Hay fever.
 (3) Malignant growths (*Bayer, Hofmann, Michel, Schæffer, Schmiegelow*).
 2. *Pulmonary.* Asthma.
 3. *Aural.* Chronic otorrhœa.
 4. *Nervous.* Epilepsy.

DIAGNOSIS.—1. From other benign nasal growths.

Myxoma of the Nose.

1. Very common.
2. Usually multiple.
3. Usually pedunculated.
4. Consistency very soft.
5. Elastic to the touch.
6. Very hygroscopic.
7. Accompanied by prominent reflex symptoms.
8. Never attended with deformity.
9. Removal easily accomplished as a rule.

Other Benign Nasal Growths.

1. Comparatively rare.
2. Usually single.
3. Usually non-pedunculated.
4. Of varying degrees of hardness.
5. Non-elastic to the touch.
6. Non-hygroscopic.
7. Reflex symptoms not prominent.
8. Frequently result in great deformity.
9. Removal often attended with great difficulty.

2. From malignant growths of the nose.

Myxoma of the Nose.

1. Very common.
2. Not attended with cachexia.
3. Surface smooth, soft, glistening, semi-opaque.
4. Hygroscopic.
5. Do not bleed freely when touched.
6. Painless.
7. Rarely ulcerates.
8. Nasal discharge mucous, odorless.
9. No destruction of surrounding tissues.
10. Rarely causes deformity.
11. Growth slow.
12. Prognosis good.

Malignant Growths of the Nose.

1. Very rare.
2. Attended with marked cachexia.
3. Surface soft, friable, ulcerated.
4. Non-hygroscopic.
5. Bleed freely when touched.
6. Extremely painful.
7. Always ulcerates.
8. Nasal discharge mucopurulent, acrid, sanious, fetid.
9. Great destruction of surrounding tissues.
10. Always give rise to deformity.
11. Growth slow at first, afterwards very rapid.
12. Prognosis fatal.

3. From hypertrophic rhinitis (*vide*).

4. From abscess of the nasal septum (*vide*).

PROGNOSIS.—1. Good, as regards removal.

2. Uncertain, as to recurrence.

TREATMENT.—1. *Surgical (cocaine anæsthesia).*

(1) *Evulsion.*

a. By forceps.

(2) *Abscission.*

a. By Jarvis's écraseur (*small-sized, light*).

(3) *Cauterization.*

a. Galvano-cautery (*repeated applications*).

2. *After-treatment.*

(1) *To destroy all polypoid tissue.*

a. Application of caustics.

- (a) Iodine, strong solution.
- (b) Chromic acid.
- (c) Carbolic acid.
- (d) Nitric acid.
- (e) Galvano-cautery.

h. Osteoma of the Nose.

DERIVATION.—ὀστέον, bone.

SYNONYMES.—1. Bony tumor of the nose.

2. Osseous tumor of the nose.

3. Tumeur osseuse du nez (*French*).4. Knochengeschwülste der nase (*German*).5. Tumori ossei del naso (*Italian*).

DEFINITION.—A rare growth of the nasal fossæ most frequently encountered in the young, and especially in males, consisting, histologically, in a new formation of bony tissue not connected with the bony framework of the nasal cavities, and characterized by a slow but progressive growth to enormous size with great deformity.

VARIETIES.—1. Hard (*dense, ivory-like,—common*).2. Soft (*cancellous,—rare*).ETIOLOGY.—1. *Predisposing causes.*

(1) Youth, fifteenth to twentieth year.

(2) Sex, male.

2. *Exciting cause.*

(1) Traumatism.

PATHOLOGY.—

- | | | | |
|-----------------|---|------------------------|--|
| 1. Macroscopic. | { | (1) Nose. | <i>a.</i> Mucous membrane inflamed, eroded. |
| | | | <i>b.</i> Presence of tumor. |
| | | | (a) <i>Size.</i> Large, bean to hen's egg. |
| | | | (b) <i>Surface.</i> Covered with mucous membrane, irregularly lobulated, nodulated, hard, with occasional prolongations, often ulcerated and necrosed. |
| | | | (c) <i>Color.</i> Rose-red to purple. |
| | | (d) <i>Origin.</i> | <i>a.</i> Accessory cavities (<i>common</i>). |
| | | | <i>β.</i> Upper portion of nasal fossæ. |
| | | (e) <i>Attachment.</i> | Pedunculated (<i>usual</i>). |
| 2. Microscopic. | { | (1) Tumor. | <i>a.</i> Bony tissue. |
| | | | (a) Compact. |
| | | | (b) Cancellous. |

SYMPTOMS.—

- | | | | |
|-----------|---|--|--|
| 1. Local. | { | (1) Nose. | <i>a.</i> Respiration obstructed completely, oral. |
| | | | <i>b.</i> Discharge muco-purulent, profuse, fetid. |
| | | | <i>c.</i> Epistaxis frequent, severe. |
| | | | <i>d.</i> Sneezing frequent; frequent acute coryzas. |
| | | | <i>e.</i> Anosmia, partial or complete. |
| | | | <i>f.</i> Nostrils, marked sensation of itching. |
| | | | <i>g.</i> Pain neuralgic, increasing, severe; <i>later</i> , anæsthesia (<i>from paralysis of nerves</i>). |
| | | | <i>h.</i> Presence of tumor. |
| | | | <i>i.</i> Growth slow, progressive; perforation of cranium (<i>rare</i>). |
| | | | <i>j.</i> Deformity (<i>often first symptom</i>) marked. |
| | | <i>k.</i> Occasional spontaneous separation of growth (<i>dead osteoma</i>). | |
| | | (2) Eyes. | Exophthalmos (<i>occasional</i>) (<i>Fenger, Hilton, Mott, Tillmann</i>). |

2. *General.* { (1) Malaise general.
(2) Headache.
(3) Grave cerebral symptoms (*occasional*).
(4) Septicæmia (*occasional*).

DURATION.—Long.

DIAGNOSIS.—Plain. By the microscope.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*

a. *Of soft variety.*

(a) Crushing and removal by forceps.

b. *Of hard variety.*

(a) Dental burrs (*best*).

(b) Rouge's operation (*attended with great hemorrhage and danger to life and great disfigurement*).

a. Separation of upper lip and base of nose from superior maxilla.

β. Reflection upward, exposing anterior nares.

γ. Removal of growth.

i. Papilloma of the Nose.

DERIVATION.—*Papilla*, the nipple.

SYNONYME.—Warty growth of the nose.

DEFINITION.—A somewhat rare condition, consisting essentially in an hypertrophy of the normal papillæ of the nasal mucous membrane, giving rise to the appearance of wart-like growths or excrescences within the nasal fossæ, and attended with the production of nasal stenosis and the other symptoms of obstruction.

VARIETIES.—1. Hard (*situated lower in nasal fossæ*).

2. Soft (*situated higher in nasal fossæ*).

ETIOLOGY.—Uncertain.

PATHOLOGY.—

- | | | | |
|------------------------|---|-------------------|---|
| 1. <i>Macroscopic.</i> | { | (1) <i>Nose.</i> | a. Mucous membrane congested, hyperæmic. |
| | | | b. Presence of multiple tumors. |
| | | | (a) <i>Size.</i> Pea to hazel-nut. |
| | | | (b) <i>Surface.</i> Raspberry-like, irregular, nodulated. |
| | | | (c) <i>Color.</i> Whitish or pink. |
| | | | (d) <i>Origin.</i> Lower turbinated bone. |
| 2. <i>Microscopic.</i> | { | (1) <i>Tumor.</i> | a. Hyperplasia of connective tissue. |
| | | | b. Proliferation of epithelial cells. |
| | | | c. Dilatation of blood-vessels. |
| | | | |

SYMPTOMS.—

- | | | | |
|----------------------------------|------------|--------------------|--------------------------------|
| 1. Local. | { | (1) Nose. | a. Respiration obstructed. |
| | | | b. Discharge mucous, odorless. |
| | | | c. Epistaxis occasional. |
| | | | d. Presence of tumor. |
| | | | e. Growth slow. |
| | (2) Mouth. | a. Cough frequent. | |
| b. Expectoration mucous, slight. | | | |
| c. Retching occasional. | | | |

DURATION.—Indefinite.

DIAGNOSIS.—Plain. By the microscope.

PROGNOSIS.—Good.

- TREATMENT.—1. *Surgical.* (1) *Extirpation.*
- a. Cold snare.
 - b. Scissors.
 - c. Knife.
- (2) *Application of caustics to base.*
- a. Chromic acid.
 - b. Acetic acid.
 - c. Nitric acid.
 - d. Electric cautery.

(2) MALIGNANT NEOPLASMS OF THE NOSE.

DEFINITION.—Tumors of the nasal passages which are characterized by a relentless progressive growth, great destruction of tissue, a tendency to metastatic formation in other portions of the body, and by the production of a grave cachectic condition of the system, with final death.

VARIETIES.—1. Carcinoma.

2. Sarcoma.

a. Carcinoma of the Nose.

DERIVATION.—*Καρκίνος*, cancer.

SYNONYME.—Epithelioma of the nose.

DEFINITION.—Essentially a disease of middle life, and an extremely rare condition in childhood, though occasionally encountered at that period, characterized by the appearance in the nasal fossæ of a small reddish wart, which sooner or later breaks down to form a ragged, corroding ulcer, showing a strong tendency to involve adjacent structures, and resulting in great destruction of tissue with the production of a profound cachectic condition, eventually causing the death of the patient.

VARIETIES.—1. Primary (*rare*).

2. Secondary.

ETIOLOGY —1. *Predisposing causes.*

- (1) Hereditary influence.
- (2) Age, middle life.
- (3) Sex, male.

2. *Exciting cause.*

- (1) Traumatism.

PATHOLOGY.—

- | | | | |
|-----------------|---|--|--|
| 1. Macroscopic. | { | (1) Nose. | a. Mucous membrane inflamed, swollen. |
| | | | b. Presence of growth. |
| | | | (a) <i>Size.</i> Small, wart-like at first; afterwards large. |
| | | | (b) <i>Surface.</i> Hard at first; later, soft, friable, ulcerated; edges of ulcer raised, hard, ragged; base sanious, corroded. |
| | | | (c) <i>Color.</i> Reddish, later grayish. |
| | | (d) <i>Origin.</i> Upper nasal passages. | |
| | | (e) <i>Attachment.</i> Sessile. | |
| | | (2) Cervical glands. | Enlarged. |

2. *Microscopic.* { (1) Proliferation of epithelial cells.
(2) Infiltration of tissues with epithelial cells.

SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Respiration obstructed, oral.
b. Discharge sero-sanguinolent, profuse, acrid,
peculiar, offensive usually.
c. Epistaxis rare.
d. Presence of growth.
e. Pain severe, lancinating, constant.
f. Deformity great, destruction of nasal tissues.
g. Growth slow, progressive.
2. *General.* { (1) Skin pale, cachectic.
(2) Emaciation progressive.
(3) Lymphatics enlarged.
(4) Prostration increasing.

DURATION.—One to one and a half years.

DIAGNOSIS.—From nasal calculus (*vide*).

PROGNOSIS.—Grave. Tendency to return.

- TREATMENT.—1. *Surgical.* (1) *Extirpation.*
a. Jarvis's cold snare.
b. Curette.
(2) *Application of caustics to base.*
a. Chemicals.
b. Galvano-cautery.
b. *Sarcoma of the Nose.*

DERIVATION.—Σάψ, flesh.

DEFINITION.—A rare growth of the nasal fossæ, consisting, histologically, in an infiltration into the tissues of round or stellate cells, and characterized by the presence of a tumor of somewhat slow growth, which is accompanied, sooner or later, by extensive destruction of tissue with great deformity, and by the production of a profound cachexia with ultimate death.

- VARIETIES.—1. Primary (*rare*).
2. Secondary.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Age, under thirty usually.
(2) Sex, male.
(3) Catarrhal inflammation of the nose.

2. *Exciting cause.*

- (1) Traumatism.

PATHOLOGY.—

1. *Macroscopic.* { (1) *Nose.* a. Mucous membrane inflamed, reddened,
ulcerated.
b. Presence of a tumor.
(a) *Size.* Large.
(b) *Surface.* Soft, nodulated,
highly vascular; later, ul-
cerated, friable, with bleed-
ing points, bathed in pro-
fuse unhealthy secretion.
(c) *Color.* Pink, red, blue, gray,
dark-brown or black (*Mac-
kenzie*).
(d) *Origin.* a. Septum.
β. Nasal walls (*es-
pecially outer*).
γ. Floor of nose.
(e) *Attachment.* Pedunculated
(*always*).

2. *Microscopic.* { (1) *Tumor.* a. Net-work of connective tissue.
b. Presence of cells in the meshes.
(a) Round.
(b) Stellate.
- SYMPTOMS.—
1. *Local.* { (1) *Nose.* a. Respiration obstructed, unilaterally.
b. Discharge muco-purulent, sanious, profuse, fetid, of a greenish tint (*occasional*).
c. Epistaxis at times violent.
d. Anosmia partial.
e. Pain severe, persistent, increasing, unilateral or bilateral; later, anæsthesia from paralysis of nerves.
f. Presence of tumor, movable.
g. Growth slow at first, later very rapid.
h. Deformity great, vast destruction of tissue.
- (2) *Mouth.* Voice nasal.
(3) *Pharynx.* Deglutition difficult.
(4) *Ears.* Deafness (*occasional*).
(5) *Eyes.* Exophthalmos (*occasional*).
2. *General.* { (1) Skin pale, cachectic (*profound*).
(2) Emaciation marked.
(3) Malaise general.

DURATION.—Short.

DIAGNOSIS.—From lupus of the nose.

Sarcoma of the Nose.

- History of traumatism.
- Accompanied by no external manifestations at first.
- Characterized by the presence of an ulcerated tumor, soft, movable, vascular.
- Very painful.
- Nasal discharge muco-purulent, sanious, profuse, greenish, fetid.
- Epistaxis often violent.
- Constitutional involvement profound.
- Growth slow at first, later very rapid.
- Cachexia profound.
- Deformity great, vast destruction of tissue.
- Prognosis fatal.

PROGNOSIS.—Fatal.

TREATMENT.—1. *Medical (of doubtful value).*

- Application of astringent solutions.
- Injection into tumor of lactic acid (*thirty-per-cent. solution*).
- Surgical (under cocaine, or first stage of chloroform anæsthesia).*
 - Extirpation.*
 - Curette.
 - Spoon.
 - Cold snare.
 - Galvano-cautery.
 - Electrolysis.
 - After-treatment.* (1) *To arrest hemorrhage.*
 - Packing of nose with small sponges.

Lupus of the Nose.

- History of the scrofulous diathesis.
- Usually secondary to external disease of the nose and face.
- No tumor; characterized by the presence of elevated, non-vascular ulcerations on septum.
- Usually painless.
- Nasal discharge thin, sero-mucous, scanty, never blood-tinged, rarely offensive.
- Epistaxis rare or entirely absent.
- Constitutional involvement slight.
- Growth always extremely slow.
- Cachexia absent or slight.
- Deformity characteristic, partially cicatricial.
- Prognosis good as regards life.

Diagnostic Table of Tumors of the Nose.

	Adenoma.	Angioma.	Dermoid Cyst.	Enchondroma.	Fibroma.	Myxoma.	Osteoma.	Papilloma.	Carcinoma.	Sarcoma.
Origin.....	.....	1. Upper por- tion of nasal fossa. 2. Cartilagi- nous septum. 3. Middle turbinate bone.	1. Septum. 2. Inferior turbinate bone.	1. Cartilagi- nous sep- tum. 2. Outer nasal wall. 3. Nasal roof.	1. Upper por- tion of nasal fossa. 2. Floor of nose. 3. Septum.	1. Middle turbinate bone. 2. Sup. turbi- nated bone. 3. Septum. 4. Antium of Higmore.	1. Accessory cavities. 2. Upper por- tion of nasal fossa.	1. Lower turbinate bone.	1. Upper por- tion of nasal fossa.	1. Septum. 2. Nasal walls. 3. Floor of Nose.
Size.....	Large.	.....	.....	Grain of corn.	May be im- mense.	Small bean to acorn.	Bean to hen's egg.	Pea to hazel- nut.	Large.	Large.
Surface.....	Firm.	Irregularly rounded; soft.	.....	Rounded, irreg- ularly nodu- lated, dense.	Irregularly rounded, lobulated, smooth, glistening, dense, nu- merous pro- longations.	Often multi- ple, round, oval, pyrri- form, soft, smooth, shining, semi-trans- parent.	Irregularly lobulated, nodulated, hard, often ulcerated, occasional prolonga- tions.	Raspberry- like, irregu- lar, nodu- lated.	Hard at first; later, soft, friable, ul- cerated.	Soft, nodu- lated, highly vascular; later, ulcer- ated, friable, bleeding.
Color.....	.....	Reddish, purple.	.....	Yellowish- pink.	Reddish-pink, white.	Pale, pinkish.	Rose-red to purple.	Whitish or pink.	Reddish; later, gray- ish.	Pink, red, blue, gray, brown, black.
Attachment, Discharge....	Mucous, pro- fuse, watery.	Sessile.	Mucous.	Sessile. Mucopur- ulent.	Sessile. Mucopur- ulent, pro- fuse; mixed with blood- clots.	Pedunculated. Mucous, watery, pro- fuse at first; later, puru- lent, pro- fuse, yellow.	Pedunculated. Mucopur- ulent, pro- fuse.	Sessile. Mucous.	Sessile. Sero-sanguin- olent, pro- fuse, acrid.	Pedunculated. Mucopur- ulent, san- guinous, profuse, greenish.
Odor.....	None.	.....	.....	Offensive at times; "frog-face."	None.	None.	Fetid.	None.	Fetid usually.	Fetid.
Deformity....	.....	.....	.....	Marked; "frog-face."	Marked; "frog-face."	Thickening of nasal bridge.	Marked.	.....	Great; ulcer- ative.	Great; ulcer- ative.
Rate of Growth....	Slow.	Slow.	Slow, pro- gressive.	Slow.	Slow, relent- less.	Slow.	Slow, pro- gressive.	Slow.	Slow, pro- gressive.	Slow at first; later, very rapid.
Age.....	.....	Early life.	Congenital.	Adolescence, 11-17 years.	Adolescence, early adult age, 16-30 years.	Adolescence, after 16 years.	Adolescence, 15-20 years.	.....	Usually after middle life.	Usually before 30 years.
Sex.....	.....	Male.	.....	Male.	Male.	Male.	Male.	.....	Male.	Male.
Prognosis....	Good.	Good.	Good.	Good.	Good.	Good.	Good.	Good.	Grave.	Grave.
Frequency...	Very rare.	Rare.	Rare.	Very rare.	Rather com- mon.	Common.	Rare.	Rare.	Very rare.	Rare.

5. *Abscess of the Nasal Septum.*DERIVATION.—*Abscessus*, a recess.

DEFINITION.—A collection of pus in the nasal septum, usually in the forepart, due to the degeneration of a previously existing blood-tumor or to some local traumatism, and running through a course of short duration to resolution after evacuation.

VARIETIES.—1. Acute.
2. Chronic.ETIOLOGY.—1. *Exciting causes.*

- (1) Degeneration of a blood tumor.
-
- (2) Traumatism.

PATHOLOGY.—

- 1.
- Macroscopic.*
- { (1)
- Nose.*
- Mucous membrane of septum inflamed, congested; color dark, dusky-red, or lighter (
- chronic cases*
-); swollen; abscess situated in forepart, usually symmetrically bilateral.

SYMPTOMS.—

- 1.
- Local.*
- { (1)
- Nose.*
- a. Respiration obstructed, oral.
-
- b. Discharge purulent, at times bloody, profuse.
-
- c. Pain severe.
-
- d. Swelling upon septum very painful, fluctuating.
-
- e. Skin red, tender.
-
- (2)
- Mouth.*
- Voice muffled.
-
- (3)
- Eyes.*
- a. Conjunctivæ red, extremely sensitive.
-
- b. Lachrymation frequent, profuse.
-
- 2.
- General*
- { (1) Malaise general.
-
- (only in { (2) Fever slight.
-
- acute { (3) Headache occasional.
-
- form). { (4) Anorexia partial.

DURATION.—Short, few days.

SEQUELÆ.—Permanent opening in septum.

DIAGNOSIS.—From myxoma of the nose.

Abscess of the Nasal Septum.

1. Septum frequently the seat of abscess.
-
2. Swelling of the mucous membrane of the septum, attended with a sense of fluctuation.
-
3. Almost always symmetrically bilateral.
-
4. Color of the mucous membrane deep-dusky red.
-
5. Painful.
-
6. Nasal discharge purulent, at times bloody.
-
7. No prominent reflex symptoms.
-
8. Usually accompanied with profuse lachrymation and intense inflammation of the eyes.
-
9. Duration short.
-
10. Not attended with grave sequelæ.

Myxoma of the Nose.

1. Septum rarely the seat of polypi.
-
2. Presence of a tumor, or tumors, in the nasal channel, soft and movable.
-
3. Usually unilateral.
-
4. Color of the mucous membrane pale, pinkish.
-
5. Painless.
-
6. Nasal discharge mucous.
-
7. Attended with prominent reflex symptoms.
-
8. Eyes usually not involved.
-
9. Duration long.
-
10. Attended with grave sequelæ.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) Evacuation of contents.
a. Sharp-pointed bistoury.
(2) Free drainage.
(3) Insertion of small linen tent into wound.

ABNORMALITIES AND SURGICAL DISEASES OF THE NOSE.

1. *Arhinia*.

(Mentioned by Vrolik and others.)

DERIVATION.—'A, not; *ῥίς*, the nose.

DEFINITION.—An excessively rare congenital condition, in which, from the arrest of development of the median process and of the two globular processes of His, there results a total absence of the nose.

2. *Microrhinia*.

DERIVATION.—*Μικρός*, small, *ῥίς*, the nose.

DEFINITION.—A congenital atrophy of the nose, which is frequently associated with other atrophic defects of the face.

3. *Macrorhinia*.

DERIVATION.—*Μακρός*, large; *ῥίς*, the nose.

DEFINITION.—A rare congenital condition in which there is an hypertrophy or hyperplasia of the tissues of the nose, arising from some causes unknown.

4. *Birhinia*.

(Mentioned by Broleli and others.)

DERIVATION.—*Bíce*, two ; *ῥίς*, the nose.

SYNONYME.—Double nose.

DEFINITION.—A rare congenital condition in which there is an over-development of the foetal tissues, resulting in the formation of two noses more or less distinct.

5. *Bifid Nose.*

DERIVATION.—*Bifidus*, forked.

SYNONYME.—Split nose.

DEFINITION.—A congenital condition of the nose in which there is a separation or splitting of the extremity, due to an incomplete union between the lateral cartilages.

6. *Absence of the Nasal Bones.*

(Mentioned by Delpech and others.)

DEFINITION.—A rare congenital condition in which, through defective development of the median process, there is an absence of the nasal bones, giving rise to a flattened appearance of the nose.

7. *Absence of the Cutaneous Septum of the Nose.*

(Described by Otto and others.)

DEFINITION.—A peculiar congenital condition giving the appearance of a single nostril, due to an arrest of development of the mid-frontal process, and usually associated with a palatal or alveolar defect.

8. *Atresia Narium.*

DERIVATION.—'A, not; *τετραίνω*, to bore.

SYNONYMES.—1. Atresia of the nostrils.

2. Imperforate nose.

DEFINITION.—A congenital condition of the nose in which there is a closure of the nostrils, usually by a membranous plate stretched across the nostrils, or by firm fibrous tissue, or by simple continuity of the integument, giving rise to interference with respiration and nursing.

- TREATMENT.—1. *Surgical.* (1) Simple incision.
 (2) Insertion of short elastic canula or lint.
 (3) Dilatation of channel of nose.
 a. With hollow bougies.
 b. Forcibly with thin, long-armed forceps.

9. *Fissures of the Nose.*

SYNONYME.—Nasal clefts.

DEFINITION.—A condition of the nose, always congenital, a variety of the oblique fissures of the face, in which there is a splitting or separation of the tissues of the nose, due to a lack of union between the external portion of the frontal process and the superior maxillary process, and often associated with hare-lip, coloboma of the upper eyelids, and other congenital defects.

VARIETIES.—1. Lateral } Incomplete.
 2. Bilateral (*Guersant*) } Complete.

- TREATMENT.—1. *Surgical.* (1) Application of caustics.
 (2) Denudation of edges and suturing together.

(To be continued.)

Clinical Memoranda.

A CONVENIENT METHOD OF RETAINING DRESSINGS.

BY W. BEATTIE NESBITT, B.A., M.D., C.M.F.C.S.,

Toronto.

MY reasons for publishing the following plan is the hope that some of my *confrères* may find this device as convenient in their cases as it has been in mine.

The method was originally illustrated before the Toronto Medical Society, where, of course, I was able to readily explain the construction, which I fear will be somewhat more difficult in a written description. Having a very troublesome case (lumbar abscess, due to necrosis of one of the dorsal vertebræ), in which the patient was able to attend to his occupation for some months, I found great difficulty not only in applying a dressing which would remain in position while he was engaged in his work (box-maker), but which, when removed, could be replaced by one of his friends.

My first attempt to remedy this was the adoption of the Forney suture, which consists of a strip of adhesive plaster with eyelets along one edge. A piece of this was applied to the skin on each side of the dressings, which were then retained by a lacing.

Having to unlace this several times, it occurred to me that an arrangement similar to the hooks on our laced boots would certainly be less troublesome to the physician and might be appreciated by the patient's friend. I therefore had some ordinary hooks, such as ladies use on their dresses, sewn about an inch apart to a piece of tape. A piece of rubber adhesive plaster was now taken, and without removing the attached cloth an inch of the end was doubled over and holes corresponding to the position of the hooks on the tape nicked into the edge. The protective face cloth is now removed and the hooks on the tape passed through the holes, care being taken to have the convex curve of the hook towards the short end of the plaster and the face of the hook looking to the adhesive

service of the same. The hooks having been passed through the edge of the plaster, it is now doubled upon itself until the two adhesive surfaces are approximated and the tape with its hooks firmly held. Since first using this it has become possible to buy tape with hooks attached at most dry-goods stores for a few cents a yard. I have often found it a little less troublesome in lacing to allow the edge which is doubled over to be finally doubled so that it extends about a quarter of an inch forward of the hooks. This gives them a basis to rest upon, so that they are not apt to be entangled in the dressings. It will also be found of service to reinforce the plaster with another piece three inches long and of the same width as the previous piece. This piece is applied to the lower surface of the other half an inch from the hook end and backward for half its length, thus leaving a free portion one and a half inches long.

The only portions of the plaster which will be adhesive are those in juxtaposition to the skin, and the portion to which the hooks are attached is a free flap of two inches in length. The reason for applying the reinforcement is that it seems to protect the remainder of the plaster from the lifting force that is brought to bear upon it by the lacing over the elevated absorbent pads, etc. It also prevents the entrance of any discharge and the consequent loosening of the plaster. Two plasters of the length desired having been prepared in this manner they are applied about four inches apart, one on each side of the opening, starting on a level about an inch above it, and continued downward parallel to the line of discharge. By this, of course, is meant the prevailing direction of the flow from the drainage-tube. In this manner the plasters are protected, to a great extent, from discharges, and may be retained in place for a comparatively long time. The plasters having been attached, all that is necessary is to apply the usual dressings and lace over them, throwing the cord from one hook to another.

Although in a description any plan necessarily appears somewhat lengthy, yet in practice this is not the fact, as it only takes two or three minutes to prepare the plaster, and once prepared it remains for a number of dressings.

The advantages which I have found in this manner of retaining dressings are, first, the doing away with wrapping such parts as the chest in a voluminous bandage, which is not only inconvenient of application, but a discomfort to the patient, and in the case of the elastic and easily compressible chest walls of young children a possible injury; second, in these cases, especially of children, it not only remains in posi-

tion, but holds the dressings in close application despite their active movements; third, if thought necessary, as is customary with myself in these cases, the dressing may be made still less oppressive to the respiratory movements by the substitution of elastic cord in place of the ordinary article; fourth, it is possible by this means to certainly retain dressings in some positions where any other method would act but indifferently, or not at all; fifth, by the use of the elastic cord, dressings may be applied to parts where limited or extensive motion is either desirable or unavoidable. Sixth, the patient can himself remove and replace the dressings in difficultly accessible parts; and, in conclusion, I have found it of great convenience to the physician.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Von Schweinitz and Gray: The Production of Immunity from Diphtheria. (*Philu. Med. News*, 1891, lviii. 21.)

In view of the interest which is at present being taken in biochemical research, and the impetus which has been given to investigation in this line, we deem it advisable to make a preliminary statement in regard to the work which we have conducted in producing immunity from diphtheria in animals. The disease-germ which we have used is Klein's bacillus, which is probably identical with the Klebs-Löffler bacillus. Without going into details, we may state that we have succeeded in obtaining a chemical substance which renders guinea-pigs treated with it insusceptible to diphtheria on subsequent introduction of the strong virus into the system, while the control guinea-pigs died in from twenty-four to forty-eight hours.

We further believe that the experiments being made will demonstrate that we have a substance which will serve to control or prevent diphtheria in man. That methods for the treatment of typhoid fever, tetanus, and other contagious diseases can be worked at in a similar way is undoubtedly true, though it may require a long series of experiments to demonstrate this conclusively.

McKone, J. J.: Acute Laryngitis following Ingestion of Hot Pie; Intubation; Recovery. (*Occidental Med. Times*, 1891, v. 122.)

The patient was a boy, aged four years, who swallowed a mouthful of hot mince-pie, which had been left upon the stove. He immediately complained of pain in the throat, and a few hours afterwards the child had difficulty in breathing, and his voice was hoarse. For three days he continued to grow worse, at which time he was in the following condition: The dyspnoea from laryngeal obstruction was very urgent and had been gradually increasing for twelve hours. There was deep supraclavicular and inframammary depression, dilatation of the *alæ nasi*, aphonia, and suppressed cough. The skin was blue and bathed in perspiration, and the pulse weak and intermittent. Intubation was easily done, and the child received complete relief. In a few moments the child fell asleep for the first time in twenty-four hours. It remained asleep for three hours, and on awakening partook of some semisolid food, which it had persistently refused before the operation. The tube was coughed out in twenty-four hours, and although the breathing was easy, the tube, with the string attached, was reintroduced at the earnest solicitation of the family. However, the child pulling upon the string broke it, at the same time drawing the tube out of the larynx and swallowing it. Three days later the tube was passed *per anum* without difficulty, and the child made a rapid and complete recovery.

Engelmann, G. J.: The Health of the American Girl, as imperilled by the Social Conditions of the Day. (*Annals Gynec. and Ped.*, 1891, iv. 329, 393.)

I have endeavored to show that the health of the American girl is threatened and impaired by causes more or less avoidable, as they are due to our methods of life, our methods of training and education; that the physique of this girl, most favorably situated, amid auspicious possibilities, is imperfect; her brain overworked, her nerve-power exhausted, her function impaired, and reproduction endangered, all by reason of the susceptibility of her peculiar organization, and the increased impressionability of the sensitive system during the years of development, in which it is subjected to the most severe strain.

The remedy is: attention to woman's peculiar organization and the cyclical waves of her dominant function; or, in other words, harmonious development and occupation of nerve and muscle; diminished brain-work and nerve stimulation, with

increased and co-ordinate physical exercise ; increased protection and diminished compression of dress ; self-knowledge and individual care during periods of heightened susceptibility. An harmonious co-education of mind and body should be approximated, with coincident maintenance of proper hygienic conditions. The nerve and emotion strain of class competition must be abolished ; the stress of constant work, the train of thought, and the routine of regulation must be broken ; mind and heart should be educated rather than memory, the nerve strain varied by healthful pleasures and physical exercise in the open air, all relieved more or less, according to individual necessities.

Snell, Simeon: *The Prevention of Ophthalmia in the New-Born.* (*The Lancet*, April 25, 1891.)

A moderate estimate gives thirty per cent. of all cases of blindness as due to this disease alone. The statistics of the author of this paper places the proportion still higher,—a percentage of thirty-nine and six-tenths at the Sheffield School for the Blind. This refers to those blind in both eyes. There are no means of knowing the number of others suffering from the loss of one organ or with one or both more or less damaged. Much can be done by diffusing information as to the dire effects of neglect of early treatment.

Cards might be distributed from infirmaries and birth registration organizations. The one of the Sheffield General Infirmary reads as follows: "Important: If a baby's eyes run with matter and look red a few days after birth, take it at once to a doctor. Delay is dangerous, and one or both eyes may be destroyed if not treated immediately."

Prevention of the disease.—This is scarcely touched upon by the text-books or by teachers of obstetrics. Credé showed in 1881 how much more prevention was within the range of the obstetrician than the ophthalmologist.

His method was, directly the cord was tied, to cleanse the eyes and drop a two-per-cent. solution of nitrate of silver into them. By this means he succeeded in reducing the percentage of the disease from thirteen to less than one per cent. Anti-septic vaginal injections before and during delivery diminished but did not abolish the disease.

Ludwig Korn went still further. He used vaginal irrigation of a solution of perchloride of mercury before and after every digital examination. As soon as the head was born the eyelids and surrounding parts were scrupulously cleansed by means of cotton soaked in hydrant water. It was tried to prevent opening the lids until the cleansing was complete.

The results were good. The vaginal irrigations were gradually dispensed with: no nitrate of silver was used.

The eyes of all infants born in the clinic were washed. The results showed only three cases of ophthalmia in one thousand, only one in the last seven hundred, and not one in the last four hundred and twenty.

Previous to this report a plan had been in use at the Jessop Hospital for Women. It depended for its efficacy on simple cleansing. Not a single case occurred in two thousand births.

Simply cleansing appears to be sufficient. There are reasons against intrusting a strong solution of nitrate of silver to nurses, but some antiseptic may be used. The sublimate solution will do well enough for cleansing the eyelids and surrounding parts. The obstetrician has the opportunity of preventing the disease.

II.—MEDICINE.

Eichberg, Joseph: The Pathology of Diphtheria. (*Weekly Med. Rev.*, 1890, xxii. 481.)

Diphtheria is a distinct and isolated, well-defined, morbid process, peculiar in its nature, constant in its character through many centuries, occurring as an infectious disease, readily communicable by contact, and sometimes shows itself as an epidemic. It is as clearly and markedly as independent a morbid process as measles, scarlatina, or typhoid fever. If we examine the evidence that points to the independent nature of diphtheria we have, from a clinical stand-point, the following facts: The disease manifests itself under all conditions of temperature, in all regions of the globe. All ordinary hygienic influences are powerless in the face of this dread destroyer; indeed, at times it would almost seem that cleanly homes and good surroundings invite the evil. Nor is it attached in any way to telluric influences, since epidemics have been reported, on good authority, as originating on ship-board, long after the vessel had been out of sight of land. Racial distinction avails naught in the face of this specific poison.

So firm an abiding-place has the disease now found in all civilized communities that we may speak of it as pandemic, with occasional local increased intensity. No age is exempt, and the two sexes suffer in equal ratio; social position is without influence on course or susceptibility. There is not

any protection conferred by a previous attack, nor does one attack render the patient more liable when subsequently exposed. Heredity plays no part in the liability to its occurrence; and there is no special diathesis that hastens its spread.

That it is essentially an infectious disease is shown by the frequency with which a number of widely-separated foci develop simultaneously in a circumscribed community; and that it is contagious in a high degree has been so abundantly and repeatedly verified as scarcely to require further mention. The specific nature of the disease, its right to be considered as a morbid process *per se* is attested more by these traits of contagiousness and infection, and by certain of its sequelæ, than by the seat or character of the local process.

According to Virchow's classification, we find a croupous inflammation of more frequent occurrence in diphtheria than a diphtheritic one, the spread of the disease being from the surface inward. Diphtheria frequently begins, as a limited deposit, in a very circumscribed area, from which, by gradual extension, there is involvement of the mucous membrane lining, respectively, the nose, Eustachian tube, mouth, larynx, trachea, and bronchi. The bearing of the local spread of the disease upon the necessity for prompt institution of local treatment is sufficiently obvious. It must be apparent, from what has been said, that we may have examples of genuine diphtheria with products that are, in one case, simply catarrhal, in another, fibrinous, and in a third, diphtheritic. Cases of supposed simple catarrhal pharyngitis, followed by the familiar symptoms of diphtheritic paralysis, have been reported; so that it would appear that diphtheria is not to be made dependent upon diphtheritic membrane as a pathognomonic sign.

The deposit in the pharynx is not, however, a necessary preliminary to general infection, as is shown by a case reported by Paterson, in which the local process was confined to the finger, but the disease was followed, in several weeks, by a general paralysis. Of the sequelæ of diphtheria, the most noteworthy is the so-called diphtheritic paralysis. Except that it occurs within a reasonably short time after diphtheria, and must be made dependent upon the action of poisons generated during the continuance of that morbid process, there is nothing peculiar or idiopathic in this paralysis. The cause, omitting the paralyzes which occur in the fauces, would seem to be a poliomyelitis anterior of irregular distribution, with conservative morbid changes in the nerve fibres of the anterior roots.

Whitney, H. B.: *Pleuritic Effusion in Children, with Two Cases.* (*Denver Med. Times*, 1890, x. 161.)

The two points to be especially noted in the pleuritic effusions of children are their frequent latency, and their great tendency to spontaneous absorption as compared with similar cases in adults. The writer reports two cases in children, aged two and four years respectively. In both the effusion was on the left side and undoubtedly serous. In both the effusion was spontaneously absorbed.

In neither of them were there any of those marked rational signs which we are too apt to regard as invariably associated with such an important thoracic lesion; no pain nor marked febrile disturbance, no especial dyspnoea. The chest was examined, not because of any thoracic symptoms, but because the habit had been formed of exploring the chest in every case where the diagnosis was not perfectly clear. Henoch deserves the credit of having first emphasized the comparative frequency of these latent effusions. Particularly when a child is anæmic, has lost some little flesh, and shows nothing, perhaps, on casual inspection except some slight depreciation of the general health, a latent effusion should always be thought of; or, still better, there should be a thorough physical exploration as a matter of routine.

With children it very often happens that a loud bronchial respiration is heard everywhere over an effusion. It may, in certain cases, even be accomplished by a moist râle, although it is usually clear. *Ægophony* is rare over an effusion in children; more often the voice is simply muffled, or there may be loud bronchophony in those cases where the respiration is also bronchial. The vocal fremitus is usually diminished, but not invariably so. It may even be increased. It is impossible to diagnosticate a pleuritic effusion in adults, and still less in children, by means of the auscultatory signs alone. They are valuable, but not conclusive. Nor is the difference in the degree of flatness between consolidation and effusion of any special diagnostic worth. For many influences may combine as, for instance, a distended stomach, transmitted resonance from the opposite lung, or partial adhesions to render the note over an effusion slightly resonant. On the other hand, a hepatized lung, the tubes of which are plugged with bronchial secretion, may be quite flat. Of still less value is the variation in the line of flatness on change of posture. No such variation in the level of the fluid ever takes place in a pleuritic effusion at any age.

There are, however, two diagnostic features of pleuritic effusion in distinction from pneumonia, which are characteristic.

The first is the displacement of the heart, mediastinum, or diaphragm, occurring, of course, only in effusions of considerable size. The second sign, which, in the great majority of cases, is pathognomonic, is the curve of the upper line of flatness. This line has two varieties according to the amount of effusion, the one being a simple curved line with upward convexity, and the other, more characteristic, the so-called letter S curve.

The treatment of pleuritic effusion should be very conservative, and paracentesis should be resorted to in those cases only where there is danger to life, or where long observation has shown no subsidence of the effusion under conservative and tonic treatment. An out-of-door life is usually indicated, and mountain or sea air is often very beneficial.

Guthrie, L. J.: The Bulbar Crises of Diphtheritic Paralysis occurring in Children. (*The Lancet*, April 18, 1891.)

The object of this paper is to describe symptoms of diphtheritic paralysis which are often unexpected, unrecognized, and often prove fatal.

These symptoms consist in sudden and severe functional disturbances of the vital medullary centres.

The premonitory symptoms of bulbar crisis are (1) marked listlessness and apathy; (2) a weak, hoarse, and nasal voice; (3) irregular and sighing respiration; (4) a loose, weak, and almost noiseless cough, with commencing accumulation of mucus in the throat and air-passages; (5) a rapid pulse, together with the other minor signs of diphtheritic paralysis. Bulbar crises are apt to occur with these. Such crises are sudden, acute exacerbations of the symptoms which prevailed before. This exciting cause may be a fit of passion or other emotion, sometimes a physical exertion, sometimes they occur spontaneously.

During the crises there is sudden paralysis of deglutition; there is complete aphonia, alarming dyspnoea, and extreme restlessness. The pupils are dilated, and the face becomes bluish or pallid or sweating. The diaphragm is often paralyzed. Loud moist râles are audible all over the chest. This condition might be mistaken for capillary bronchitis. The temperature rises suddenly to 102° or 103° ; the pulse-rate increases to 140 or 155 or more. There is no loss of consciousness.

This suggests a parallel with the gastric crises of locomotor ataxia.

The next constant and characteristic symptom of a bulbar crisis is copious vomiting of a greenish-brown frothy liquid.

The dyspnoea often seems relieved by the vomiting, and the crisis is thereby ended. The patient lies exhausted and seems at the point of death, but death seldom occurs during a first attack. Within a few minutes or a few hours similar attacks recur, during which, or after which, death may happen from exhaustion, syncope, cardiac thrombosis, or absolutely from suffocation due to the accumulation of mucus in the air-passages.

Besides suddenness of onset, therefore, tendency to subside and to recur is a marked feature of these crises; their duration varies from a few minutes to a few hours. They kill according to their severity and continuance and according to the degree of the patient's exhaustion. After a period of about forty-eight hours they cease to recur, and if the patient survives through this time he usually recovers. They may be expected any time during the first six weeks of the paralytic symptoms. The writer has not seen them occur later.

(Concluded in *Lancet*, April 25, 1891.)

Pathology.—Both the symptoms of diphtheritic paralysis and the pathological changes discovered after death point to a disturbance of function occurring in the nerve-centres and in the nerve-fibres, rather than to the existence of inflammatory mechanical or essentially destructive lesions.

The function of the diaphragm, the disturbance of the vagus and other bulbar nerves, are present one moment and gone the next.

The central ganglia have been found in various stages of granular and fatty degeneration, sometimes swollen and cloudy, sometimes vitreous, and sometimes atrophied and empty.

The changes in the nerve-fibre are parenchymatous. They are precisely similar to the trophic changes seen in the distal end of a divided nerve. Sometimes the central ganglia appear perfectly healthy, while extensive degeneration has taken place in the nerve-fibre.

This, together with the fact that the nerve-changes usually predominate over the ganglionic, lends support to the theory that diphtheritic paralysis is essentially a peripheral neuritis.

Treatment.—General principles. Rest in bed for six weeks from the onset of paralysis. Abundant nutritious food and tonics, especially strychnia.

Treatment of crises.—Their nature is to subside and recur; therefore the utility of any special treatment is open to question. A remedy that stimulates the failing cardiac and respiratory centres and arrests the flow of mucus in the air-passages is indicated.

Strychnine and atropine in combination fulfil the indication.

Three cases were treated by injection of strychnine and atropine of each one-hundredth of a grain; two of these recovered.

Three cases were treated by strychnine alone; two of these died.

The nasal tube is employed as soon as deglutition fails.

Predigested food only should be administered, and in small quantities, for digestion is probably much impaired.

As regards the death-rate in diphtheritic paralysis the statistics vary from twelve per cent. to twenty-seven and four-tenths per cent., the latter from the Paddington-Green Children's Hospital (whence the materials for this paper have been obtained).

McFarlane: Cases of Concurrent Scarlatina and Measles. (*The Lancet*, May 16, 1891.)

These diseases, though sometimes epidemic together, are rarely found concurrent in the same person. Such a condition occurred in three cases in children of the same family. The eldest, aged four and a half years, was suddenly taken ill, and developed scarlet fever. Three days later he began to have coryza, suffusion of the eyes, and to cough. On the fifth day, when the scarlatinal rash was fading, a characteristic rash of measles appeared. The patient had swelling of the glands and suppuration of the middle ear, but made a good recovery.

A younger brother, aged three years, developed a well-marked scarlatinal rash, which was followed in three days by that of measles.

He progressed favorably until six days later, when the glands of the neck and underjaw became much swollen. The throat and mucous membrane of the nose became greatly inflamed, and showed patches of false membrane. Convulsions supervened, followed by death.

The third child, aged one and a half years, was seized in the same way. Scarlatina came first, followed in four days by measles. Both ran their course without any untoward symptoms, and he was progressing favorably until the beginning of the third week, when his neck became much swollen and inflamed. Suppuration and sloughing ensued, and he died exhausted a few days later.

Voalcker: Tuberculosis of Mediastinal Glands invading the Lungs. (*The Lancet*, May 9, 1891.)

Notes of three cases were read, and specimens illustrating involvement of the lung by caseous glands shown.

In the first case, a child aged ten months, there was a strong

tubercular history. At the necropsy a large amount of caseous glands was found above the left bronchus, and a cavity the size of a walnut was found in the left upper lobe in direct continuity with the caseous glands.

In the second case, aged nineteen months, a cavity in the right lower lobe of the lung was in relation to a caseous chain of glands from the root of the right lung.

In a third case, aged twenty-three months, the middle lobe of the right lung was converted into a caseous mass, as a result of the ulceration of a caseous gland into the bronchus leading to it.

Dr. Voaleker remarked that, although caseous glands were frequently found extending far into the lung, these were merely the pulmonary glands which existed normally, and which become caseous. His cases differed from these in the fact that in his cases the lung-tissue appeared to be destroyed by the invasion of the caseous glands.

He remarked on the frequency of caseous bronchial glands in children, having found them in one hundred and ten cases in the last three hundred necropsies at the Children's Hospital, and expressed a doubt as to their occurrence apart from some tubercular affection, either of the lung or of some other part. He also urged that the relation of the gland to the lung lesion, its particular distribution, and the fact that the glands became caseous, often without any caseation in the lung, made him regard the destruction of lung-tissue as secondary to the gland changes.

Dr. Payne said that these cases showed tubercular disease was commoner in very young children than was supposed. It had been maintained that the disease might be congenital.

Fœtal tuberculosis was not unknown in calves.

Dr. Walter Carr had met, at the Victoria Hospital for Children, with ten cases, in which it appeared that the disease in the lung started from tubercular glands. Seven of these were under three years.

Dr. Voaleker, in reply, referred to a necropsy he had made on a child only three months old, in whom there was extensive tubercular disease of the lungs and bronchial glands. His experience was that cavities were not unusual in children, and caseous masses might be scattered through the lung independent of tubercular masses lying at the root.

Fox, Hingston: Recovery from Hydrocephalus. (*The Lancet*, April 18, 1891.)

Dr. Hingston Fox showed a boy, now aged six years and nine months, who had at nine months much enlargement of

the head following pneumonia, a wide median fissure extending from two inches above the root of the nose to near the nape of the neck, clearing the frontal and occipital bones. The head was now well ossified throughout, though bulky,—twenty-three and one-half inches in circumference.

Some lateral nystagmus existed, but sight and hearing were fairly good; intellect rather baby-like. A favorable prognosis might, perhaps, have been based, six years ago, on the absence of convulsions or vomiting, the good family history, teeth formation undelayed, and perhaps the occurrence after a specific disorder.

III.—SURGERY.

Lovett, R. W.: *Hydrocele in Children, with a Report of Cases.* (*Boston Med. and Surg. Journ.*, 1890, cxxiii. 584.)

Of the thirty cases which I have been able to tabulate, five were cases of encysted hydrocele of the cord, and the remainder were situated in the tunica vaginalis, being examples of the ordinary infantile or scrotal hydrocele, with the exception of one case, which was a well-marked instance of funicular hydrocele, when the fluid did not reach the bottom of the scrotum.

The children were very young when they were seen. Two-thirds of them being in their first four months, five cases were in the second year, and over that age there were three cases, all of which were five years old. These latter had been affected with hydrocele only a few weeks, so that they cannot be classed as congenital cases. Fifteen of them were clearly described by the mothers as beginning in the first few weeks of life. At the same time there were several cases where the hydrocele apparently began in the first few months, and in most of them no clearly-marked traumatism could be assigned. Such cases were the three already alluded to, where the hydrocele began at the age of five; in the other instances, it began some time in the first year.

It has ordinarily been stated that the hydrocele of infants is easily reducible, the fluid running back into the abdominal cavity, when the child is laid on his back and the scrotum manipulated. In these twenty-five cases of vaginal hydrocele, the notes were defective in three cases, and of the remaining twenty-two cases, nineteen were not reducible by any ordinary manipulation.

Of the thirty cases reported, nine were double, twelve

affected the right side, six the left side, while in three the affection was unilateral but the side was not noted. Only three cases of coexisting hernia were noted, one a slight funicular hernia, and the other two well-marked cases of infantile hernia. The size of these infantile hydroceles has varied very much, at times they have been small and flaccid, but more often tense and entirely filling the scrotum. The diagnosis is, of course, simple, and is dwelt upon at some length in all the text-books.

Of the thirty cases, it has been possible to obtain the results of treatment in twenty-one. Of the five cases of encysted hydrocele of the cord, four have been heard from and all were cured. One was tapped and cured by one withdrawal of the fluid. The other three were treated by counter-irritation and expectancy, and yielded readily in a few days or weeks. None of these cases were congenital, and the affection had been of short duration in each case.

Of the twenty-five cases of scrotal hydrocele, it is possible to report the results in seventeen cases. Ten were tapped with a hypodermic needle or a small trocar, and the sac completely evacuated with every antiseptic precaution. Nine of these cases were cured, while one remains in the same condition at the end of two years. This was a case of double reducible hydrocele, widely open into the abdomen with a slightly complicating hernia on one side. Seven cases were treated without tapping and the patients were kept merely under observation or given some mild counter-irritant to use. Four of these cases recovered, while three are not improved.

In conclusion, if these cases have served to show anything, it has been to demonstrate that all cases of infantile hydrocele are not present at birth, but begin later in many instances; that the majority of cases of infantile hydrocele cannot be demonstrated to communicate with the abdominal cavity; and that, finally, with a strong intrinsic tendency towards recovery, the disappearance of the affection is much hastened by the antiseptic withdrawal of the fluid contents of the tunica vaginalis where communication with the abdomen cannot be demonstrated.

Johnston, S.: Foreign Bodies in the Nose in Children versus Nasal Catarrh. (*Phila. Med. News*, 1891, lviii. 64.)

After reporting five cases, the writer said that in not one of these cases had the nasal passage been properly examined. There is no better light than the sun for investigating the upper air-passages, and the simple introduction of a probe

into the nostrils, the head of the child being held firmly between the knees of the surgeon, is not a difficult operation.

Necrosis being excluded, a foreign body in the nose is the most rational diagnosis to make when we detect a hard substance in the nasal passages of a child. Foreign bodies are most frequently found in the noses of children between the time when they begin to creep and the age of six years. They may be mistaken for tumors, deviation of the septum, hypertrophy of the middle and inferior turbinated bodies, abscess, congenital syphilis, etc., but these affections are excluded by careful examination.

Before beginning the operation for the removal of a foreign body from the nose, it is best to wrap the child in a sheet in order to confine the arms and legs; then, with an assistant holding the body, the child is placed between the knees of the surgeon and a probe gently introduced into the nostril. If a foreign body is present, a sense of resistance will be felt if the substance be soft, or a grating sensation if it be hard, and the operation may be completed without delay. The parts surrounding the foreign body will, as a rule, be found swollen, and for the purpose of reducing this turgescence, the application of a solution of cocaine is advisable, followed a few moments later by a spray of liquid albolene to facilitate the removal. The subsequent treatment consists in simply washing out the nose twice daily with a weak solution of the permanganate of potassium.

Of the various instruments for the removal of foreign bodies from the nose, I prefer Gross's extractor and the wire loop in ordinary cases. A pair of slender forceps may be at hand for withdrawing the substance after it is brought to the nasal orifice. In children who are tractable the operation may be performed without an anæsthetic, but in the majority of cases much time and pain are saved by the careful use of an anæsthetic.

Mortimer: On the Treatment of Intussusception by Injection or Inflation; and its Dangers. (*The Lancet*, May 23, 1891.)

In the cases of intussusception, which commonly occur in infants and young children, treatment by injection or inflation has certain obvious advantages. The author brings forward in this paper further evidence of the dangers which should, at least, induce the utmost caution in the performance of this method of treatment.

The author calls attention to the want of published evidence of dangers, shown in unsuccessful cases, and the difficulty of

telling if damage is done unless a post-mortem examination is made. Before beginning the operation one should know (1) the best way to do it; (2) how much force may be used without danger. Few and vague directions are given in textbooks and special treatises.

The use of the bellows of Higginson's syringe, of siphons of aerated water, plugging the rectum to cause accumulation of intestinal gas, and that of generating carbonic acid gas, are all objectionable.

Insufflation is considered no less objectionable than injection of fluid. Water can be allowed to flow in from a tube and funnel, and the force indicated exactly by the height of the funnel.

The rate at which water is passing and the amount injected can also be observed. Leaking can be prevented by Lund's instrument, or lint or a bandage may be rolled round the tube to form a slightly conical shoulder. Pressing the nates together is unreliable. There is no advantage in inversion. The effect of an injection as regards distention of the bowels depends on the obstruction and on the external support. The greater the general intra-abdominal pressure, the more is the distending effect neutralized. In infants under chloroform the large intestine is distended by almost the whole force of the stream.

During the last year the author has tried to find, as far as can be done in the post-mortem room, the amount of distention an apparently normal colon will bear without rupture. The experiments were made chiefly with children under two years of age.

The result is given in a table published in the original article. It seems, from this, that when the resultant pressure distending the colon is about two and a half pounds to the square inch (irregularly raised five feet) there is apt to be cracking of the peritoneum, which usually occurs on raising to eight feet; and under a pressure corresponding to only six feet there may, in some cases, be complete rupture of the bowel.

The writer has only had one opportunity of experimenting post mortem on an invagination which occurred during life. The details of this experiment are given carefully. One interesting point is that after fifteen minutes with the irrigator raised two feet it was raised to three feet and rupture of the colon occurred in four minutes.

Experiments of seven are quoted, showing that in cats intussusception of three days was reduced by insufflation in one case, but in the other a force necessary to reduce the invagination caused rupture of the peritoneum. The details of a case

are given to show the risks of the practice. The symptoms and treatment are described. The necropsy showed three ruptures in the descending colon, and yet, though several injections were practised, the greatest force used was that obtained by elevating the irrigator three feet.

Mr. Bryant, in referring to similar cases, states his opinion that "under all circumstances the treatment by inflation is hazardous and dangerous, although success in exceptional cases may be recorded;" and that it is only justifiable in the first three days and in cases not presenting symptoms of acute strangulation. A serious objection to the operation, however performed, is that the conditions under which it is done can only be guessed at.

Manipulation through the abdominal wall is difficult and dangerous, for it may suddenly increase, during injection, the pressure on a softened part. There is uncertainty in telling when partial rupture has occurred. There is uncertainty in telling when reduction is complete, and the pressure being continued, rupture may occur.

Injection has an advantage against laparotomy, in being less dependent for success on personal skill, with suitable appliances and surroundings. But it is equally true that an experienced practitioner may do as much harm as the merest tyro. If the bowel is in a condition to be reduced at all it may be compressed and pushed out as evenly and safely by the fingers as by an injection; while the distention of the sheath, which occurs during the latter proceeding, so far from being an advantage, is, except, perhaps, within the first few hours, a great source of danger. It can hardly be alleged that with proper precautions abdominal section is the more dangerous, or that by its performance there is appreciably increased risk of either simple or septic peritonitis, such being frequently the direct consequence of invagination. Most of the arguments which have been brought forward in favor of early injection apply equally to early abdominal section, and it has been shown, both by experiment and otherwise, that the latter may succeed when the former fails. When an acute case has been allowed to go on for some time, it is generally agreed that injection should not be attempted; even then, considering how extremely rare is spontaneous cure in children, by sloughing or otherwise, it is a question whether abdominal section may not in many cases be justifiable.

Battle: Acute Epiphysitis. (*The Lancet*, May 9, 1891.)

Specimens of epiphysitis obtained from long bones in infants under one year of age, with disease at one or both articular

ends, were shown. The accompanying suppuration took place in the contiguous joint but once in the immediately adjacent soft tissues. The disease had apparently in every instance started at the end of the diaphysis. The epiphysis was only secondarily effected, and was in no case completely separated from the diaphysis.

The superficial opening of the suppuration did not correspond in size with the cavity of the ulcer, the interior of which was filled with pus, and there were granulations on the wall.

The author's conclusions regarding the disease are as follows :

1. That it was essentially an osteomyelitis of the very vascular, growing ends of the diaphysis of the long bone of the extremities.

2. Although the disease usually commenced in the growing end of the diaphysis, it might effect the epiphysis primarily.

3. That the disease was not a pyæmic condition.

4. The bones which are the most commonly affected were the femur and humerus; in the former, both articular ends; in the latter, the upper one.

5. The acute arthritis of infants was a condition of joint which might result from several causes, of which the form of osteomyelitis (under consideration) and pyæmia were the most common. Localized osteomyelitis must not be excluded as a possible cause for an acute arthritis until sections of articular ends of the bones forming the joints had been made, and its absence thus proved, for the opening, by means of which pus escaped into the joint, was sometimes very minute, and might escape observation.

In the discussion following, Mr. McNamara agreed with the author's conclusions. He said that the great practical lesson to be learned from these cases was to cut down early in all doubtful instances, so as to save the joint and prevent death from pyæmia.

Mr. Brodie had seen a child, aged seven weeks, in which the whole of the upper end of the femur had been destroyed in a very short time.

Mr. Jonathan Hutchinson, Jr., referred to a case of epiphysitis over the lower end of the tibia, in which, after incision, a cure resulted.

Dr. J. J. Clark considered that the cases of epiphysitis which ran on to pyæmia resembled cases of general tuberculosis following a local deposit.

In reply, Mr. Battle said that the disease appeared to start, both in syphilitic and nonsyphilitic cases, in the growing end of the diaphysis, where the vascular changes were most in-

tense. The osteomyelitis was not of itself a pyæmia, but it might give rise to that disease.

Alexandroff: Treatment of Tubercular Peritonitis in Children by Abdominal Section. (*Journ. de Méd.*, March 29, 1891.)

The surgical treatment of tubercular affections of the peritoneum presents great scientific interest aside from the practical importance on account of the inexplicable and mysterious side of its action. Three principal forms of tubercular peritonitis may be distinguished:

1. A form with disseminated masses of tubercle in the peritoneal cavity, and without ascites.
2. A form with effusions collected in cysts.
3. That in which the tubercle is disseminated and the ascites general.

The progress of the disease may be acute, subacute, or chronic. With the exception of the ascetic form, which is often mistaken for simple ascites, and yields readily to tonic treatment and to repeated punctures; the different forms of peritoneal tuberculosis have a grave prognosis, and have even been considered incurable by Henoch.

The first cases in which tubercular peritonitis were treated surgically were cases in which there was an error in diagnosis. The results of such treatment were so favorable that the number of cases thus treated was quickly increased. König presented to the last International Medical Congress a table of one hundred and thirty-one cases in which this treatment had been adopted. The mortality in these cases was only three per cent. Each operation consisted in making a free opening into the belly and evacuating the liquid which it contained. The other steps of the operations were accessory and had little influence upon the results. The cures have not been merely temporary, they have persisted for periods of two, twelve, and twenty-five years. In some of the cases autopsies showed complete disappearance of the tubercular deposits. The author narrates a case in which abdominal section was performed for tubercular peritonitis upon a child three years and nine months of age. After six weeks the child appeared to be entirely well. The effect of abdominal section in such cases has been attributed to the action of light upon the bacillus of Koch. This explanation is insufficient, for in cutaneous tuberculosis of prolonged action, light produces no such favorable results. König explains the result as the suppression of the peritoneal cavity. Notwithstanding the frequency of tubercular peritonitis in children, abdominal section for this

condition has been performed only twenty times upon children under fifteen years of age. The result was favorable in every case. In two of the cases the disease recurred, and secondary abdominal section was followed by recovery. The opinion is therefore justified that abdominal section offers one of the best methods for the treatment of tubercular peritonitis in children.

A. F. C.

Cheyne, W. Watson: *Expectant Treatment versus Operative Interference in Cases of Tubercular Joint-Disease.* (*The Lancet*, November 15, 1890.)

There is a question which presents itself at once to every practitioner when he comes across a case of tubercular disease of a joint,—viz., Shall I employ expectant treatment in this case, or must operative measures be adopted?

By expectant treatment is meant all those forms of treatment in which the skin is left intact, and by operative treatment all forms in which the skin is divided.

Tubercular tissue presents three qualities,—infectiveness, irritating character, and tendency to caseation.

It is in acting on this chronic inflammation that the chief effect of expectant treatment depends. By placing a limb at rest and employing extension, pressure, and counter-irritation, we do not act at all on the tubercular tissue directly, but these means are of known efficacy in controlling chronic inflammation. Tubercular inflammation in joints commences either in the synovial membrane or in the bone. It seems to begin in one or two spots, and then slowly or rapidly spreads over the entire membrane. In the bone extremities primary tubercular disease occurs in the form of one or more localized deposits, rarely as a more diffuse tubercular osteomyelitis. These are of two forms, one undergoing caseation, the other resulting in a sequestrum.

In regard to the question proposed, each case must be considered by itself; no rules can be laid down which are generally applicable.

Those who hold that the disease is comparable to cancer, and advocate early, thorough, and wide removal of the affected tissue, are, in the opinion of the writer, more erroneous than those who go to the opposite extreme.

Tuberculosis in man is essentially a local disease. In the struggle between the tissues of the human body and the tubercular virus the opposing forces are pretty equally matched, and the victory does not always rest with the bacillus. In a good many cases actual recovery occurs without operative interference.

There are on record a good many cases of tubercular peritonitis that have recovered, though only an incision was made. Many of these cases were verified by microscopical examination. The writer has made simple incision into the joint without removing tissue, and has had forty-seven per cent. of such cases get well without further interference.

Again, many chronic tubercular abscesses have recovered by aseptic drainage without removal of any portion of the wall and without any antiseptic application to their interior.

Of fifty-eight cases of spinal abscess thus treated, sixty-five per cent. have recovered. In performing arthrectomy or incision, we cannot avoid cutting through tubercular tissue, and there is no doubt that after the operation a large amount of tubercular virus is left in the wound, and that the wound would certainly become infected again were it not that the tissues have a great power of overcoming the parasite. Yet those who take the view of great curability and persist in expectant treatment in all cases are also wrong, for, no doubt, in many instances the cure can be much expedited and the ultimate result improved by suitable operative measures.

On the question of the risk of dissemination of the tubercular virus in cases of joint-disease the author has nothing to say except to give his own conclusions. Infection of various parts of the body may occur at the same time; secondly, the virus may be distributed from the original source, such as a bronchial gland, on various successive occasions; thirdly, subsequent development of the disease may be due to fresh infection from without, quite independently of the primary deposit; and, fourthly, it may be the result from the primary bone- and joint-disease. It is thus obvious that even complete removal of the joint-trouble by amputation does not by any means guarantee the patient against an outbreak of tubercular disease elsewhere, and the only question, therefore, is as to the degrees of danger involved in the presence of these local deposits and as to the amount of protection obtained by their removal.

As regards acute tuberculosis, there can be little doubt in some cases that the source of infection is the diseased joint. In the case of hip-joint disease the proportion of cases is something like four per cent.

There is no doubt that operation itself is either directly or indirectly, in some cases, the cause of the dissemination.

The author's opinion is that, while it is quite likely that some cases might not occur if early operation were performed, this advantage is counterbalanced by the risk that the operation itself may lead to dissemination of the disease, and,

therefore, he does not think that the hope of saving a patient from acute tuberculosis is of itself a sufficient reason for operating.

In the discussion following, Mr. Edmund Owen agreed with the author, and protested against the early stages of tubercular disease of the hip-joint being dealt with by excision; cases of early disease were just those which gave the most satisfactory result to the expectant treatment.

Statistics prove that lung-disease more often follows operative than expectant treatment, when phthisis and tubercular arthritis are associated. This fact was probably to be explained by the worst cases having been selected for amputation and excision.

Mr. Parker believed that after excision of the hip the subsequent malnutrition and stunting of the limb were often due to the disease which rendered the operation necessary, and not to the operation itself. Excision, in his opinion, should only be advocated when expectant treatment had been fully tried and failed. When caseation was advancing and had gone beyond the stage suited for treatment, excision should be performed. When suppuration existed in the hip, it was very unlikely that the head could be saved; it was therefore better in such cases to excise at once than to incise and drain.

Mr. Bowlby would not advocate prolonged drainage after opening an abscess in connection with the hip-joint. His usual practice in such cases was to open the abscess as soon as there was any evidence of its presence, by such a free incision as to render a drainage-tube unnecessary. He thought that it was only in a few cases that the joint was the source of constitutional infection.

Mr. Cheyne said that in suppuration of the hip-joint it was not a good plan to excise the head of the femur as a routine practice.

Wynter, W. Essex: Tubercular Meningitis, Paracentesis of the Theca Vertebralis, with a Report of Four Cases. (*The Lancet*, May 2, 1891.)

In many fatal cases of tubercular meningitis coma supervenes with great rapidity and with all the signs of cerebral pressure, while after death little can be found besides an excess of cerebro-spinal fluid, often at a considerable positive pressure, to account for the symptoms and fatal issue. The possibility of recovery in this class of cases, where there is commonly little development of tubercle, together with the feasibility of draining away the fluid continuously by the theca vertebralis, suggested this mode of procedure.

The first case was a boy, aged three years, who had manifested the usual symptoms and became comatose the eighth day.

No anæsthetic was used. The child was supported in a sitting position. A tiny incision was made in the skin by the side of the second lumbar vertebra, and a Southey's tube and trocar inserted until the point impinged against the lamina; the point was then directed slightly downward and was pushed through the ligamentum subflavum and theca with an inclination towards the middle line. Clear fluid at once welled up into the tube on withdrawing the trocar; a fine india-rubber tube was arranged for continuous drainage. Four drachms of fluid were collected in the next twenty-four hours besides what escaped along the canula. The child improved at first, but the fluid ceased to escape and the child died.

The autopsy showed no damage to the cauda equina.

The second case was a girl aged eleven years. The usual symptoms were present. The second lumbar vertebra was cut down upon, the spine and right lamina removed, and the theca punctured with a small knife. Clear fluid escaped with some force. A drainage-tube was inserted. There was improvement for twenty-four hours, but the flow gradually became less and the child died. The autopsy showed that the opening in the theca had closed, and when it was opened fluid spurted out.

The third case was a boy aged two and a third years. The theca was cut down upon and incised. Twelve drachms of fluid escaped. There was marked temporary improvement. The pupils, formerly dilated and inactive, contracted and regained their reflex activity at once. The child died five hours after operation.

The fourth case was a girl aged thirteen months. After convulsions had occurred, a Southey's tube was introduced into the theca vertebralis and four ounces of cerebro-spinal fluid withdrawn. The fontanel sunk in. Death occurred in three hours.

Though none of these cases were ultimately successful, no harm in any one resulted from interference. In some there was temporary relief of symptoms, and the necropsy in each case showed ample reasons for the fatal termination, either in general tuberculosis or failure in maintaining drainage.

It is much to be regretted that the aperture was allowed to close in the second case, which promised well till pressure was renewed by reaccumulation of fluid. Further experience will no doubt enable a better selection of cases to be made and the treatment to be carried out more effectually.

PRELIMINARY PROGRAMME
OF THE
AMERICAN PEDIATRIC SOCIETY.

THE Third Annual Meeting will take place at Washington, D. C., September 23 and 24, 1891. The sessions will be held in Parlor No. 206, of "The Arlington."

The final programme will be sent to each member about August 1. Suggestions as to additions to or alterations in the programme can be forwarded to the President up to July 20. It is anticipated that the meeting will be a large and enthusiastic one, occurring as it does in connection with the Congress of American Physicians and Surgeons, of which it represents an important part. The members are called upon to see that their especial localities are fully represented at the meeting, in order that the public, both medical and lay, may recognize that a need has been felt for especially advancing the study of infancy and childhood, and that that need has promptly been attended to by the formation of our Society. It is also brought to the attention of the members that they should make especial efforts to be present at the meeting, in order that they should encourage those who are preparing papers, by thus assuring them of a large audience, and also to impress upon the other societies that the American Pediatric Society is an established fact, and intends to be a leader among the many important medical organizations which have been established throughout the country. It is expected that a number of distinguished foreign guests will honor the Society by their presence. Members are earnestly requested to make the demonstration of cases, specimens, apparatus, etc., a leading and successful feature of the afternoon sessions.

The Society is invited to open the proceedings by breakfasting with the President at "The Arlington," on Wednesday, September 23, at 9 A.M.

T. M. ROTCH,

PRESIDENT AMERICAN PEDIATRIC SOCIETY,

197 Commonwealth Ave., Boston, Mass.

Wednesday, September 23.**Morning Session, 11 A.M. to 2 P.M.**

Reading of Minutes of last Meeting. General Business.

1. ADDRESS OF THE PRESIDENT.**2. The Treatment of Scarlet Fever...**J. LEWIS SMITH, M.D., New York.**3. Discussion on the Diagnosis of Pneumonia in Infancy and Early Childhood.**

(1) The most diagnostic symptoms and signs of Lobar Pneumonia (early stage), and the diagnosis from such diseases as Meningitis, Malaria, Scarlet Fever, etc. T. S. LATIMER, M.D., Baltimore (twenty minutes).

(2) The diagnosis of consolidation of the lung from effusion (serous or purulent), and the differential diagnosis between Lobar Pneumonia and Broncho-Pneumonia. F. FORCHHEIMER, M.D., Cincinnati (twenty minutes).

(3) The diagnosis of Broncho-Pneumonia from Tuberculosis, both acute and chronic, and from Bronchitis; also the Temperature Range in Acute Pneumonia, both Broncho- and Lobar. L. EMMETT HOLT, M.D., New York (twenty minutes).

(4) Remarks by W. P. NORTHRUP, M.D., New York (ten minutes).

(5) General Discussion.

Afternoon Session, 4 to 6 P.M.**1. Demonstrations.****2. Treatment of Laryngeal Diphtheria by Calomel Sublimations.**

DILLON BROWN, M.D., New York.

3. Further Report on Submembranous Local Treatment in Pharyngeal Diphtheria.....A. SEIBERT, M.D., New York.**4. Convulsions in the New-Born.....**W. D. BOOKER, M.D., Baltimore.**5. Nephritis in Children.....**HENRY JACKSON, M.D., Boston.**Evening Session, 8 P.M.****1. A Study of Fifty Cases of Chorea.**

SAMUEL S. ADAMS, M.D., New York.

2. A Case of Pulmonary Abscess—Operation and Recovery—with Remarks.....FRANCIS HUBER, M.D., New York.**3. A Case of Slow-Heart in an Infant, terminating in Fatal Syncope.**

A. D. BLACKADER, M.D., Montreal, Canada.

4. (Subject to be announced later).....J. O'DWYER, M.D., New York.**5. Stricture of the Oesophagus occurring in Children, with Report of a Case.....**F. E. WAXHAM, M.D., Chicago.

Thursday, September 24.
Morning Session, 10 A.M. to 1 P.M.

Report of Committee of Council on Nominations for Office and
 Membership.

1. The Etiology of Stomatitis Aphthosa.
 F. FORCHHEIMER, M.D., Cincinnati.
2. Scorbutus in Children.....W. P. NORTHRUP, M.D., New York.
3. Intussusception.....L. EMMETT HOLT, M.D., New York.
4. Perityphlitis in the Young, J. HENRY FRUITNIGHT, M.D., New York.

Afternoon Session, 3 P.M.

1. Demonstrations.
2. A Case of Congenital Cretinism.....C. W. TOWNSEND, M.D., Boston.
3. A Case of Congenital Constipation.
 FRANCIS HUBER, M.D., New York.
4. A Further Contribution to Cirrhosis of the Liver in Childhood, with
 Post-Mortem Notes and Microscopic Studies, W. A. EDWARDS,
 M.D., San Diego, California, and W. M. GRAY, Microscopist,
 Army Medical Museum, Washington, D. C.
5. (Subject to be announced later).....A. JACOBI, M.D., New York.
6. (Subject to be announced later.)
 A. D. BLACKADER, M.D., Montreal, Canada.

EXECUTIVE MEETING.

EVENING, BANQUET AT "THE ARLINGTON."

The reading of papers will be limited to twenty minutes, and the discussion of each paper to ten minutes for each speaker. The gentlemen selected to open the discussion on the subjects determined by the Council will be allowed twenty minutes for their remarks.

W. D. BOOKER, M.D., Secretary,

851 Park Avenue, Baltimore, Md.

ARCHIVES OF PEDIATRICS.

VOL. VIII.]

SEPTEMBER, 1891.

[No. 9.]

Original Communications.

THE NECK AND HEAD IN INFANCY.

BY THOMAS DWIGHT, M.D.,
Professor of Anatomy, Harvard University,

AND

T. M. ROTCH, M.D.,
Assistant Professor of Diseases of Children, Harvard University.

IT is customary to say that young babies have no necks, and yet in the article on the spine we stated that the cervical region of the vertebral column of the infant and young child is relatively longer than in the adult. From this point of view the shortness of the infant's neck must be apparent rather than real, but from a clinical stand-point it is real enough. The causes of the short neck are, first, the large head which naturally falls forward covering the upper portion, and next, the high position of the sternum encroaching on it from below. The large proportion of subcutaneous fat tends to make the neck appear still shorter.

Symington, referring to the soft parts, says, "The peculiarity of this part of the child's neck is not that it is relatively short, but that it is higher in relation to the vertical column than in the adult." He has shown by a series of observations that the larynx is at first placed much higher than later. In the adult the lower border of the cricoid is about on a level with the top of the seventh vertebra. In the infant it usually seems to be near the lower border of the fourth vertebra. In two children of five and six years, it was at the lower border

of the fifth or the top of the sixth. We do not quote his observations at intermediate ages, as the position of the head varied a good deal.

In a girl of thirteen it had reached the adult position. Symington found also that the top of the epiglottis descends during growth from about the level of the lower border of the atlas to the middle of the third cervical, or even lower. This high position of the larynx would imply a greater relative part of the trachea above the sternum, but this is neutralized by the high position of that bone. The amount of fat in the neck makes the trachea less accessible. The greater distance of the trachea from the surface, as it descends, as well as the greater danger of meeting the large arteries and veins above the sternum in the child, are points of anatomy so well known in connection with tracheotomy that it seems hardly worth while to insist on them.

Tillaux made a series of measurements of the distance from the sternum of the hyoid, the thyroid, and the cricoid, in men, women, and children of both sexes. We give a condensation of his statements of the distance from sternum to cricoid as the most practical. In twelve women it ranged from five and a half to seven and a half centimetres, the average being six and a half centimetres. In men the variation was greater, running from four and a half to eight and a half, but the average was precisely the same. Among the men was a lad of fifteen and a half, in whom the distance was seven and a half centimetres. He measured thirty-one children, nineteen girls and twelve boys, ranging from two years up to ten and a half. There seems no reason for keeping the sexes distinct, and we further condense the table by giving the average in the cases of several of the same age, with the following result:

Years.	Distance from cricoid to sternum.
2½.....	3.5 centimetres.
3.....	4 "
3½.....	4 "
4.....	3.8 "
4½.....	4 "
5.....	4.5 "
6.....	4.9 "
6½.....	5.5 "

Years.	Distance from cricoid to sternum.
7.....	5.1 centimetres.
7½.....	4.5 "
8.....	5 "
8½.....	5.25 "
9.....	5.25 "
9½.....	6.5 "
10.....	6.5 "
10½.....	6.5 "

It seems rather remarkable that at ten the distance should be as great as in the adult, but this may be accounted for by the subsequent descent of the larynx, and also, probably, by its proportionate enlargement (at least in the male) about puberty.

The peculiarities of the relations of the top of the larynx and pharynx to the spine in the young child are points of much practical importance to which we shall return. The changes which occur during growth depend largely on changes in the base of the skull and on the downward growth of the jaws, which shall be considered presently.

We must first discuss the general features of the skull of the infant and child. The proportions of cranium and face are, as every one knows, strikingly different. It is stated by Frieriep that the face is to the skull in the infant as one to eight, at two years as one to six, at five as one to four, at ten as one to three, and as one to two and a half for the grown woman, and as one to two for the man. If we contrast the front view of the face and cranium of the infant and the adult by counting as face all below a line at the tops of the orbital arches, and as skull all that is seen above that line, considering it projected on a vertical plane as in a photograph, we find that in the infant the skull forms about one-half and in the adult much less. Coming to details we find that the height of the orbit bears pretty nearly the same proportion to the skull at all ages, but that it equals barely a third of the adult face, while it makes nearly a half of it at birth. While the top of the nasal opening retains pretty nearly the same relation to the orbit at all ages, its lower border is but very little below the lowest point of the orbit at birth, while it is much below it in the adult. In the latter a line connecting

the lowest points of the malar bones crosses the nasal cavity, or at least touches its lower border, while in the infant it runs almost half-way between the lower border and the edge of the alveolar process. The breadth of the skull at its widest in the infant equals, or even exceeds, the total height of skull and face, while in the adult it is but about three quarters of it. More striking is the difference between the length and breadth of the face at different ages. The breadth, measured between the most distant points of the zygomata, is to the height of the face in the adult about as nine is to eight, while at birth it is perhaps as much as ten to four.

The side view is equally, or even more, characteristic. The auditory meatus is situated about midway between the front and the back in the infant, but in the adult it is decidedly behind the middle. The face appears but an insignificant part of the whole structure. The lower jaw is almost on the same plane as the mastoid process of the temporal, and the upper border of the zygoma is about on a level with the floor of the nasal cavity, while in the adult it is at, or near, a level with the floor of the orbit. It is evident that a very important factor in the adult face is the development of the jaws and of the teeth.

Further, very important changes occur in the base of the skull, among which one of the greatest is the downward growth of the face. Originally the base of the skull is practically flat. The sudden rise of the basilar process in front of the foramen magnum, the angle formed with it by the body of the sphenoid, and then the sharp descent of the vomer are adult characteristics of which at birth there is little trace. The nasal cavity is shallow and relatively long, the posterior nares small and the vomer approaching the horizontal. The nasopharynx has therefore very little height. The alveolar processes are still undeveloped, and the ramus of the lower jaw very oblique, so that the cavity of the mouth is small. As a consequence the larynx is, as we have seen, placed very high up. One of the chief causes of its descent is the downward growth of the face.

A knowledge of the changes in size and shape of the nasal cavities and nasopharynx, in the course of growth, is very important. Valuable work has recently been done by Professor

Disse.* He divides the nasal cavity into the vestibule in front, the exit behind, and the chief intermediate portion, which consists of an upper olfactory region occupying the ethmoidal portion of the cavity, and a lower respiratory region occupying the maxillary part. As we have said, in the infant the cavity is relatively long and shallow. The respiratory portion is very narrow. Casts in fusible metal, made by Dr. S. J. Mixter, in the museum of the Harvard Medical School, show a striking difference, in the proportions of the inferior meatus, between the infant and the adult. In the adult the metal runs deep under the inferior turbinate bone as a long cylinder; in the infant, though the inferior turbinate projects slightly into the cavity of the nose, there is but a very minute expansion below it, and none passing up behind it. According to Disse it is this part which shows the greatest growth. It begins to increase in height directly after birth, and goes on pretty rapidly till the beginning of dentition, when it is slow till the second year is completed. After the milk-teeth are cut the growth is rapid till the end of the seventh year. The increase in breadth occurs in the last-mentioned period, which also is the time in which the growth of the olfactory portion is most marked. Disse states that the posterior opening doubles its size in six months, remains stationary till the end of the second year, and then increases again. Our own measurements on bones are as follows:

Age.	Height of posterior nares.	Breadth between pterygoid processes at hard palate.
About birth.....	6 to 7 millimetres.	9 millimetres.
From 12 to 16 months.....	13 "	16 "
" 12 " 18 "	15 "	16 "
" 14 " 20 "	14 "	17 "
" 18 months to 3 years.	19 "	18 "
" 18 " " 3 "	15 "	21 "
" 2 to 4 years.....	15 "	20 "
" 3 " 4 "	16 "	19 "
About 6 years.....	16 "	20 "
7 or 8 years.....	20 "	22 "
7 " 8 "	21 "	25 "
About 11 years.....	18 "	22 "
16½ years, female.....		
17 " "	22 "	20 "

* Arch. für Anat. und Physiol., Anat. Abtheil Supplement Heft, 1889.

We may compare with the above, ten measurements which we have made on adult skulls. We give both the average and the extremes of variation.

Ten adults.	Height.	Breadth.
Average.....	28.4	27.7
Extreme	25 and 31	24 and 31

This shows the height does not gain the predominance until adult age. At the end of the seventh year the nasal cavity approaches the adult shape, though it seems broad in proportion, and has not of course attained its full size. Merkel has shown that in later adolescence the growth of the respiratory portion takes place chiefly in the middle meatus. In infancy the posterior border of the vomer is very oblique. With the growth downward of the jaw this obliquity is much diminished by seven or eight years.

Situated just behind the nasal cavity is the upper or nasal portion of the pharynx which shares in its changes. We may perhaps be permitted to doubt whether many practitioners who have not had the advantage of modern anatomical teaching appreciate how small a cavity the naso-pharynx is even in the adult. Its height is twenty millimetres, and its antero-posterior diameter, from the hard palate back, is twenty to twenty-two millimetres. In the infant it is very much smaller. It is less of a vestibule and more of a narrow passage running obliquely backward and downward from the constricted opening of the posterior nares. The soft palate of the child seems placed more horizontally than in the adult and bounds its anterior portion below. Kostanecki gives the height at birth as ten millimetres, and its antero-posterior diameter as fourteen or fifteen millimetres. We do not add our observations, for it seems to us that its shape is so peculiar that measurements are deceptive, or at least inadequate to give the proper idea. Imagine the posterior nares (not the inferior meatus alone but the whole opening on either side) large enough to admit the end of a good-sized male catheter, and that this leads into the passage just mentioned, and we can conceive how a congestion of the nasal mucous membrane in infancy, with the addition of the mucous secretion, will effectually close the opening from the nose to the pharynx.

It is, perhaps, not sufficiently recognized clinically how important a function is performed by the nasal passages in early infancy, far more important, indeed, than at any other age. We can, in fact, say that the age of the infant is in inverse ratio to the dangers which may arise from obstruction of the nares.

These dangers, consequent on obstruction, congestion, and the resulting mechanical disturbance of neighboring parts, thus leading to actual disease of those parts, become in the new-born infant of most serious and ever vital import.

In our own practice we have seen an infant die of simple acute nasal catarrh in the first two or three days of life. In this case the infant was indeed puny and ill-cared for. Nothing abnormal could be detected in the throat, or, in fact, anywhere, excepting in the nares, which were completely occluded by the congestion and tumefaction resulting from an acute inflammation of the nasal mucous membrane. Occurring, as the case did, in the earlier years of our practice, we did not appreciate as we do now, the extreme importance of the naso-pharyngeal function to the young subject. Therefore, after prescribing the usual remedies for such cases on the second day of the infant's life we were surprised to learn that it had died suddenly on the third day.

This case, however, served to draw our attention to the proper treatment of this class of cases, and there is no doubt but that with due appreciation of the value of the nasal function and the danger of allowing it to be interfered with, we can, as a rule, even in extremely weak infants, prevent a fatal result. It is not within the scope of this paper to deal with the treatment of these cases beyond drawing attention to a proper appreciation of the function we are dealing with.

The nasal passages prepare the air which passes through them for its ultimate destination,—the lung. The lung in the new-born is an organ whose function has but just been brought into use. It is in an extremely unstable, delicate, and sensitive condition, and cannot withstand influences which later it adapts itself to. The unchanged and hence improper air which, unmixed with the air of the nasal apertures, enters the larynx, in cases of nasal occlusion, has a detrimental influ-

ence on the lung, and thus on the general circulation, and a serious blow is struck at the infant's vitality just at a period when it is least able to withstand it. Well is it then, for us, as practical physicians, to bear in mind that our treatment is to be eternal vigilance night and day until a free passage for air is established through the naso-pharynx. Stimulants, as in any exhausting disease, and the administration of oxygen should be freely and continuously added to our local treatment of the swollen nares.

We have but just completed the treatment of a case of this kind, where for days it seemed that the infant might at any time die of suffocation, and where its life seemed to have been saved by the unremitting attention of a trained nurse night and day.

In later childhood, although the dangers which arise from occlusion are not so intimately connected with the life of the patient as in infancy, yet we can well see the evil results of such a condition represented by disturbances of growth and interference with the function of hearing with its resulting mental phenomena.

As these latter changes are in great measure due to improper ventilation of the middle ear with its resulting passive congestion, we naturally shall next speak of the Eustachian tubes.

The course of the Eustachian tube and the position of its opening must necessarily undergo corresponding changes. At birth the tube is horizontal, or nearly so. In the adult the cartilaginous portion slants downward. Nevertheless, the opening of the tube is opposite a higher part of the nose in the adult than in the child. In the foetus the opening is below the level of the hard palate, which it reaches at birth. Up to the ninth month after birth, according to Disse, there is but little change. After that time, however, the opening is distinctly higher than the floor of the nasal chambers. At four years, Kunkel found it three or four millimetres higher. In the adult it is opposite the end of the inferior turbinate bone. We have seen it at birth just above the level of the hard palate, and in a child of a year or more, if anything, below the line of the palate. This statement, as it is, may perhaps be misleading. It must be borne in mind that even if the open-

ing of the tube be below the level of the hard palate, the soft palate none the less runs beneath it, shutting it off from the cavity of the mouth and the passage from it to the fauces.

In the infant and the young child there is but a slight development of the end of the cartilage which makes in the adult so prominent a fold at the back of the pharyngeal opening of the tube, and by its prominence does much to determine the depth of the fossa of Rosenmüller, the recess behind it at the lateral posterior angles of the pharynx. At birth this prominence hardly exists. The opening of the tube is at first very small. That the catheterization of the tube at this age presents great difficulties of its own, apart from the intractability of the patient, is sufficiently obvious.

The tube in infancy, while of course shorter than in the adult, is stated to be not only relatively, but absolutely, wider at its narrowest point, which may explain the ease with which catarrhal processes travel at that age to the middle ear.

The faucial tonsils, the pharyngeal tonsil, the lymphoid masses under the mucous membrane of the posterior third of the tongue, that about the orifices of the Eustachian tubes, to say nothing of irregular aggregations of the same tissue in the neighborhood, form a lymphoid ring around the pharynx which is most important. It is to be noticed that the passage from the nose, as well as that from the mouth, is guarded by this apparatus. That its function is in part protective seems very probable, in spite of the fact that when hypertrophied it gives rise to serious trouble. Before birth this system is but slightly developed. Indeed, the follicles at the back of the tongue are not always to be found at that time. We regret that we have not had material enough to add much to the little that is known as to the progress of development of the tonsils. Killian states that the pharyngeal tonsil is at birth a raised bunch containing adenoid tissue with ridges running in various directions, often more or less converging to a point and rarely running directly forward and backward. It increases after birth, and by the end of the first year has a length of eighteen millimetres. We failed to satisfy ourselves of the presence of anything that could be called a pharyngeal tonsil in the head of an ill-nourished child of four weeks

which we recently divided in the median line. There is probably much variation. We have a beautiful specimen of one in a similar section of the head of a child of three years or less. It has a length of about twenty millimetres and narrows most strikingly the passage from the nose to the lower part of the pharynx. A pocket in the pharyngeal tonsil is the famous *bursa pharyngea*. It is clinically important merely as a recess in which inflammation may linger and secretions be retained.

As for the physiology of the tonsils, in which we include all the adenoid tissue of this region, we will mention that Stöhr showed that leucocytes make their way from them through the mucous membrane to escape into the throat. This process begins with life. He found the infiltration of the surface of the tonsil of a child of three months much greater than in the case of new-born infants.

The supposition that this system is protective receives support from Killian's observation that the pharyngeal tonsil is much developed in mammals that live in the dust of houses. Metschnikoff's theory, that leucocytes devour bacteria, does not seem to be supported; none the less, it is not impossible that this lymphatic ring forms a bulwark against septic invasion.

Stöhr's observations of the escape of white corpuscles does not necessarily conflict with the view that the tonsils absorb the secretions of the parts in front. If these secretions are irritating, inflammation of the tonsils may result. The effects of enlargement of the faucial tonsils are well known; those of the hypertrophy of the pharyngeal tonsil have been recognized only within a few years. Indeed, we imagine that the general practitioner has not known that such a structure exists for more than ten or twelve years. The small size of the naso-pharynx in the infant and young child must not be forgotten, for it explains its obliteration by the enlargement of the pharyngeal tonsil. Spicar* points out that one cause of its enlargement may be found in its absorption of regurgitated or vomited matters into the naso-pharynx in infancy. The good effects which follow removal of the pharyngeal tonsil especially

* *Lancet*, 1888.

may perhaps be quoted against the theory that this ring of lymphoid tissue is protective; but to this may be replied that when removal becomes necessary the tonsil is no longer in its normal condition.

In passing, it may not here be out of place to refer to some remarks made by us during a discussion on the treatment of diphtheria at a meeting of the Clinical Section of the Suffolk District Medical Society in 1888. We stated that, from our observations made, especially in the Diphtheria Ward of the City Hospital, which was then under our charge, and where every facility for skilled treatment and nursing was placed at our command, we had come to the conclusion that there was a marked difference in the mortality of the cases, resulting apparently from the locality principally affected.

When the faucial tonsils were the chief seat of the disease, their whole surface being thickly covered with membrane, we noticed that a general systemic poisoning, with its accompanying fatal result, was not so likely to occur as when the disease was located especially in the naso-pharynx. Here again we pointed out the value of anatomical facts as explanatory of the clinical results, showing that a slight amount of disease located in the naso-pharynx was far more likely to prove fatal than a much larger affected surface on the faucial tonsils.

The reason for this is, in all probability, that the faucial tonsils are relatively poor in absorbents in comparison with the rich plexus of absorbents found in the posterior wall of the naso-pharynx.

We do not propose to undertake a general description of the cavity of the mouth, but merely to call attention to some points which fit in with the discussion of the relations of the pharynx. A median section of the infant's head shows very strikingly the want of height of the naso-pharynx and the great obliquity (approaching the horizontal) of the posterior edge of the vomer. The naso-pharynx is relatively very long from before backward. Strange as it may seem, the distance from the back of the hard palate to the soft parts of the back of the pharynx (excluding the tonsil) is about as great at birth as in the adult.

This statement appears incredible, but is easily proved on

specimens. The tongue of the infant is greatly wanting in vertical thickness, and is shown on such a section to be long and low. The soft palate rests, therefore, on the tongue, and, the mouth being closed, runs in the main backward, descending very much less than in the adult. The uvula is rudimentary (Merkel). It seems to us that, owing to the depth of the pharynx (from before backward), the soft palate is unable to shut off the passage to the naso-pharynx as completely in early infancy as later.

It is very curious that, in spite of these peculiarities, the distance from the tip of the uvula to the top of the epiglottis is relatively as slight in the infant as later. In a median section of an adult female by Braune the distance is twelve millimetres, and we incline to believe it is often less. In Symington's section of a boy of about six years it is five centimetres. In a section of a head of three years or less it is not over two millimetres, and in another of four weeks we find that, had the mouth been closed when the head was frozen, the parts would probably have been in contact. The precise progress of the changes from the infantile condition is still to be observed. We may say, however, from the sections at the Harvard Medical School, Symington's plates of children of six and thirteen years, and other figures of children, that the change in the first two or three years is very great, and that the pharynx of older children resembles more that of the adult than of the infant.

To conclude, we would call attention to the level of the hard palate, and to what vertebræ are behind the mouth at different ages, which may be studied in connection with the position of the larynx already mentioned. We find from specimens and figures that at birth, and in the early months of life, the line of the hard palate, continued backward, would strike near the top of the basi-occipital,—that is, near its junction with the sphenoid,—or, perhaps, even strike the latter. Accordingly, at this age, if the finger be introduced directly backward through the mouth, pushing the soft palate upward, it will strike the occipital bone, and, being carried a little downward, will pass over the arch of the atlas, the base of the odontoid, and the body proper of the axis. Going still

lower, the top of the third cervical vertebra might be felt, but the larynx would hardly permit the finger to go lower, and the parts are so small that we doubt if much could be recognized below the axis. Indeed, at four weeks we find the tip of the epiglottis on a level with the lower part of the odontoid, but, of course, by opening the mouth and depressing the soft parts space might be gained. In a child of three years or less the line of the hard palate strikes about the middle of the basi-occipital bone. It would hardly be possible, without passing the finger round the soft palate, to feel much higher than the arch of the atlas; the base of the odontoid would be under the mucous membrane seen at the back through the open mouth. The tip of the epiglottis is at the junction of the odontoid with the body of the axis. We doubt if more than the very top of the third vertebra could be satisfactorily explored. At six and at thirteen (Symington's plates) we find that the line of the hard palate has about the adult direction,—that is, it strikes about the top of the atlas or the basilar process near its beginning. In both the finger could probably examine the vertebræ from the first to the fourth, inclusive. The atlas, however, would be reached with much more difficulty in the older than in the younger, as the relations of the soft palate are more nearly those of the adult.

THE TREATMENT OF CROUPOUS PNEUMONIA IN CHILDREN.

BY S. HENRY DESSAU, M.D.,

Visiting Physician to Montefiore Home; Physician for Diseases of Children,
Out-Door Department, Mount Sinai Hospital, New York.

A WELL-ESTABLISHED opinion is now held among the best authorities in pediatrics that simple primary croupous pneumonia in children is a disease that ends ordinarily in recovery. This opinion is deduced from a large experience with many kinds of treatment of the disease, as it occurs both in adults and children. At first and for many years regarded as a

local inflammatory process, it was after a time suspected that the disease was a self-limited one, running a definite course. This in turn suggested the idea that it was of infectious origin. The conception of the theory that the disease was of such a nature at once led to the adoption of an expectant plan of treatment. This is at the present day the generally-accepted view of the case.

The fact remains, however, that, in our climate, simple primary croupous pneumonia in children is a disease that becomes in certain years, when an epidemic influence, or medical constitution, according to Trousseau, is prevailing, a severe and often fatal one. I therefore propose in this paper to consider what are the true therapeutic indications in this disease as occurring in children.

The generally accepted opinion of the medical profession as to the element of danger in pneumonia is the tendency to *cardiac exhaustion*, or *heart-failure*. In order to guard against this danger it is of the highest importance to understand how such a condition is brought about. Strange to say, for a long time the high temperature, often attending the disease, was regarded as the principal factor in producing cardiac exhaustion through its degenerative action upon the cardiac muscle. It was not until the appearance of the excellent paper of Dr. A. H. Smith, of this city, entitled, "Some Considerations in Regard to Acute Obstructive Diseases of the Lungs," read before the Berlin Medical Congress in 1890, that attention was called to the important part played by the engorged condition of the diseased lung in producing cardiac exhaustion. Moreover, it was shown that the *right heart* and not the heart as a whole was the main source of exhaustion, and that it was far safer to watch the pulmonary second sound of the heart than the pulse, as a danger signal of this condition.

Acting upon this hint, let us inquire what are the disturbances of circulation produced by the pathological process in croupous pneumonia. Owing to the obstructed circulation in the engorged lung, the blood-vessels of which are in a state of permanent dilatation, the right-heart becomes overcrowded. The small blood-vessels of the general circulation are in a state of excessive contraction, due to the action of the disease-

poison upon the vaso-motor centres, and to an effort at physiological compensation for the undue blood-supply to the diseased lung. The increased arterial tension of the systemic circulation compels the left-heart, in consequence, to exert greater force and more rapid action to propel the blood through the narrowed arterioles. The return flow of venous blood to the right heart is hastened, but the obstruction in the pulmonary circulation hardly permits the right ventricle to completely empty itself, before it is filled by the venous return flow. Hence dilatation of the right ventricle, without compensatory hypertrophy occurs. In addition, the cardiac contractions as a whole are hastened by the action of the left side, as before explained, and without the complicating influence of any degenerative changes that are likely to be caused by the high temperature upon the cardiac muscular fibre, exhaustion will inevitably occur if the disease-action continues too long, or the area of lung involved becomes too extensive. These conditions of the disease exist in children as well as in adults, with this advantage, that in the child, unless previously influenced by some debilitating disturbance of health, the heart is in better condition to withstand the shock and strain of the disturbed circulation, because there is not that degenerative change of tissue apt to be already present that is so frequently incidental to adult life. This fact will go far towards explaining the statement made in the first sentence of this paper, that primary croupous pneumonia in children usually ends in recovery.

If these conditions are the correct interpretation of the tendency to cardiac failure in croupous pneumonia, as in my opinion they are, our guide for therapeutic aid and interference is made much clearer. It has been taught that croupous pneumonia, from a pathological stand-point, is a disease of the circulation. Certainly the main danger to life is one arising from the circulation, hence our main effort at interference should be directed towards correcting this mechanism. If other influences, such as the effect of the morbid poison circulating in the blood and acting upon the nerve-centres controlling the heart's action, be present, they should also be taken into consideration in the employment of our therapeutics.

Knowing that the natural course of the disease, especially in children, is usually to recovery, the great temptation to overtreatment must be strenuously avoided. But the question naturally arises, when shall the proper remedies be used and what are the special indications for their employment. The character and frequency of the pulse, the temperature, the relation of the frequency of pulse to the height of temperature, the character of the pulmonary second sound of the heart, and the general condition of the patient have all to be taken together into consideration. No single one of these symptoms alone is sufficient to warrant a hap-hazard application of remedies, the diagnosis having been definitely determined. Hence I think it will be found that the greatest success will attend the rule to treat each case of croupous pneumonia individually.

When the pulse runs over 160, with a temperature from 104° F. to 105° F. at the onset of the disease, the case may be regarded as serious in character, although Loomis does not look upon the frequency of the pulse in children as of much importance.

The height of the temperature alone, at the onset of the disease, does not in my experience invariably indicate an unfavorable termination, or lead to heart-failure, as I have seen a boy of ten years of age with a temperature on the first day of 107° F. recover. A high temperature may, however, in some children lead to convulsions, as I have before stated in a paper read before the Pediatric Section of the American Medical Association in 1890, on "The Therapeutic Value of Antipyrin in some Diseases of Children."

A condition of apathy, with inability to hold up the head in the early stage of the disease, may be regarded as of unfavorable significance. The amount of albumen present in the urine during the first three days of the disease is regarded by Dr. Soltau Fenwick, in a recent paper published in the *Lancet*, based on an analysis of the treatment of one thousand cases of croupous pneumonia, as having a definite relation to the mortality. In cases where the urine contained one-fourth albumen, thirty-two per cent. died, where one-third albumen, fifty-two per cent. died, and where one-half, eighty-six per cent. died. The extent of lung-tissue involved is regarded

by some authorities as bearing no relation to the danger of heart-failure, though it is certainly a well-recognized fact that when both lungs are involved few cases recover.

As a general rule to be observed in the management of primary croupous pneumonia in children, our therapeutic efforts should be to interfere as little as possible, but rather to assist nature after the manner she selects for favorably terminating the disease-process. As we all know, this occurs, as a rule, suddenly, and is attended with profuse perspiration, which is undoubtedly caused by a sudden return of blood from the engorged lungs to the cutaneous blood-vessels, thereby stimulating the sweat-glands inordinately. Hence I believe that the better and safer course is to employ such simple diaphoretics as the spirits of Mindererus or the liquor ammoniæ acetatis, the spirits of nitrous ether, which being a nitrite is consequently a dilator of the contracted arterioles, the combination of opium and ipecac or Dover's powder, which can be used in the liquid form as a syrup, or even the homely domestic boneset-tea, which is undoubtedly a reliable diaphoretic.

In the more serious cases the warm bath at 95° F., with active friction of the skin of the entire body, or sponging with water at 116° F., systematically and diligently employed, is now becoming popular with many large observers in the treatment of croupous pneumonia, because, on account of its undoubted diaphoretic action, through the function of the skin being increased by dilatation of the cutaneous blood-vessels, and the promotion of radiation of heat through evaporation of moisture, it is found to reduce temperature and to strengthen the heart. Fenwick found that hot sponging reduced temperature and lessened mortality better than quinine and the newer antipyretics, such as antipyrin and phenacetin, while in those cases of the sthenic form of the disease that were stubborn to the reduction of temperature by the employment of cold air alone, after the manner of a special device called the "ice-cradle,"* the previous employment of hot-sponging gave bet-

* The ice-cradle consists of an iron surgical cradle, from the central bar of which are suspended several small zinc pails half-filled with ice. The patient lies undressed, or covered with a light gauze sheet, upon the bed, and the cradle, covered with a light counterpane, is placed over him.

ter results than the cold-air treatment. This can be easily explained upon the ground that, diaphoresis being once established by the hot sponging, a high degree of radiation of heat and cooling of blood flowing to the surface of the body was maintained by the cold air. The application of the "ice-cradle" was intermitted whenever there was a fall of temperature below 100° F. The best results in the severest cases were obtained in this way, the mortality being only seven per cent. in forty-three cases treated. The "diaphoretic pack" may also be employed, as suggested by Dr. Percy Wilde (see article on "Thermotherapeutics," *International Medical Annual*, 1890, pp. 64, 77). In this connection it is with much pleasure that I am enabled to refer to editorial articles, by Dr. S. Baruch in the March and April numbers of the *Dietetic Gazette*, explanatory of the beneficial action of the warm or cool bath in aiding to divert the circulation to the cutaneous surface, and thereby relieve the overtaxed right heart, in the treatment of croupous pneumonia. Dr. Baruch makes an important point in the use of these baths, to practise *constant friction*, as it serves to restore tone to the small blood-vessels.

By the production of diaphoresis an opportunity is certainly afforded to relieve the congested condition of the diseased lung by inviting more blood into the dilated cutaneous vessels; at the same time an effort is made to eliminate some of the morbid poison circulating in the blood.

Acting upon these lines of rational physiological therapeutics, still more blood may be diverted from the venous system by a gentle stimulation of the hepatic function. The liver and its collateral circulation can be induced to contain a large volume of blood, and so act as a compensating reservoir, so to speak, for the vascular mechanism. Moreover, in receiving an in-

In order to prevent any feeling of chilliness, a hot-water bottle is kept in contact with the patient's feet. The ice in the pails is renewed at intervals, precaution being taken to cover the bottom of the pails with a piece of lint in order to prevent any condensed moisture from dripping upon the body of the patient. The free circulation of air through the cradle is a *sine qua non*. The patient's temperature is taken every three or four hours, and the cradle removed when the mercury has fallen below 100° F., or the patient shows inclination to shiver. When the body temperature rises again to 103° F., the cradle is reapplied.

creased blood-supply the various physiological functions of the liver are exaggerated, not the least important one of which is the destruction of the poisonous products, or ptomaines, generated in the system. This fact is well set forth by Brunton in his valuable work on therapeutics, and too much stress, in my judgment, cannot be laid upon this point.

By the moderate use of calomel in the form of a tablet triturate of one-tenth grain, given every hour for six doses, on the first day and thereafter every three or four hours daily, according to its effect upon the bowels, a positive stimulation of the hepatic function will be obtained, by which I believe nothing but the very best effects will be secured in the treatment of croupous pneumonia in children. The idea of obtaining any action upon the pathological process in the lung by increasing the absorption of the plastic exudation should be reverently laid aside, for this is not the object to be desired. It will be fully sufficient to relieve the engorged lung and venous system, and possibly cause some destruction of the disease-poison, by attempting to induce an increased flow of blood to a large receiving organ such as the liver. In this connection the diuretic action of small doses of calomel should not be overlooked. The kidney may become an important agent in the elimination of the fever products, and the morbidic poison.

A drug that has its admirers as well as opponents in the treatment of croupous pneumonia, especially when occurring in children, is *aconite*. Many practitioners are afraid of it on account of its reputation as a cardiac depressant. But when administered in half-drop or drop doses at the onset of the disease, and repeated hourly while the patient is awake, the effect must be therapeutically the exact contrary, as it slows the frequent pulse, thereby prolonging the diastole of the heart, and so giving that overworked organ time to regain nutrition and force. It is also believed by some to act primarily on the respiratory centres; but be that as it may, it certainly induces perspiration through dilatation of the cutaneous blood-vessels, and reduces temperature; but whether the latter is a result of radiation and evaporation of the perspiration is a disputed point. In my hands good results, as a rule, have always followed its administration.

The object of this paper would be incomplete if I failed to mention the employment of digitalis in the treatment of croupous pneumonia, which I do *only to condemn it*. So far as I can see, there is not a single therapeutic indication for its use on physiological grounds. It is probably employed more than any other drug at the present day to prevent heart-failure in croupous pneumonia, but, as I consider, upon entirely false principles. Dr. Smith, in the article before referred to, says, "Digitalis seems to be clearly contraindicated by its tendency to diminish the vascular area. Its action is to empty the arteries into the veins, whereas our efforts should be to empty the veins into the arteries. Its administration proceeds upon the wrong assumption that the heart as a whole, and not the right heart alone, is in danger of exhaustion. It cannot restore contractility to the paralyzed vessels of the affected part; on the contrary, it serves only to distend them more by increasing the tension in the unaffected vessels with which they communicate. The energy it imparts to the heart is in proportion to the muscular tissue acted upon, and, therefore, is twice as great on the left side as on the right. But the left heart has already an undue advantage over its fellow, and only harm can come from further increasing the unequilibrium." Professor Loomis says, "Digitalis is very uncertain in its action in the heart-insufficiency of pneumonia, and has seemed to more frequently do harm than good. The nervous element of the heart-failure contraindicates its use." Fenwick, in his article referred to, also shows from its use in forty-three cases with nineteen deaths that its value to prevent heart-failure in pneumonia is of very little importance.

I should like to utter a word of warning concerning one other remedy that has always been popular in the treatment of croupous pneumonia. I refer to carbonate of ammonia. Upon what grounds its popularity in this disease rests it would be difficult to say, unless about the period of crisis its use proves beneficial as a prompt diffusible stimulant to the entire circulation, when administered in full doses for a short period of time. If there is any indication at all for its employment in croupous pneumonia, it is at such a time only. I confess that I am prejudiced against the use of carbonate of ammonia

in the croupous pneumonia of children, and find that I am not alone in my opinion. Eustace Smith regards its use as dangerous in the early stage of the disease, the stimulating expectorant action of the drug tending to convert an otherwise favorable case into a fatal one. Professor Loomis says, "It has been claimed that carbonate of ammonia in large doses, in adults, stimulates the heart and prevents the formation of heart-clots by its action on the blood. The cause of heart-clots is the heart-failure, and there is no evidence that carbonate of ammonia prevents the coagulation of the blood when the blood-current is slowed. Besides, large doses of carbonate of ammonia irritate the stomach, and on this account interfere with nutrition and thus diminish the chances to recovery."

In regard to local treatment in croupous pneumonia in children, the use of the warm poultice, though a relic of the view that the disease is one of a local origin, has, nevertheless, served a most useful purpose on the principle that it aids diaphoresis by its combined warmth and moisture. The employment of the warm wet binder, after the plan suggested by Hensch, is, however, far neater and less disturbing to the little patient, while it is equally as effective. A soft napkin or large diaper is wrung out with hot water and applied around the chest below the axilla. This is kept moist by pouring on warm water from time to time, without removal of the cloths, care being taken to use only enough to keep them moist. A piece of oil-silk laid outside of the binder will serve to retain the warmth and prevent the bedclothes from becoming wet.

Fenwick says that in the London Hospital the ice-bag applied for an hour or so at a time to the affected side, after the manner suggested by Dr. Lees, has taken the place of the use of the poultice. It reduces temperature, though in reality it is employed more for the purpose of strengthening the heart. The duration and frequency of its application is guided by the fall of temperature. Brunton says that in the treatment of croupous pneumonia in children it must be used with great care, as collapse is often produced.

In the consideration of the various treatments of croupous pneumonia, suggested by different authorities, I think the conclusion may be deduced, that the most successful methods apply

to the principle of *dilatation of the cutaneous blood-vessels and the effort to maintain this condition*, thereby producing diaphoresis and at the same time reducing the temperature. This is the most rational and surest manner of relieving the overcrowded heart, and in consequence guarding against the tendency to dilatation of the right heart and subsequent paralysis of that organ. If the morbidic poison is to be regarded as an important factor in the production of cardiac-failure, by its action upon the nerve centres, as in all probability it may be, then there is no better plan that I can conceive of than to aid in its elimination through the emunctories of the skin and its destruction by the physiological function of the liver.

47 WEST FIFTY-SIXTH STREET.

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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(Continued from August number.)

10. *Fistula of the Nose.*

DERIVATION.—*Fistula*, a pipe.

DEFINITION.—A narrow passage, either completely or incompletely extending through the nasal tissues, lined with mucous membrane, and when complete, exuding upon pressure a drop of clear, white fluid, or of muco-pus.

VARIETIES.—1. Congenital (*Beeny*).

2. Acquired (*traumatism*).

TREATMENT.—1. *Surgical.* (1) Application of caustics.

(2) Excision of the fistulous tract.

11. *Nasal Calculi.*

DERIVATION.—*Calculus*, a little pebble.

SYNONYMES.—1. Rhinoliths.

2. Nose stones.

DEFINITION.—Concretions formed in the nasal cavity by an accumulation of the earthy salts of the nasal secretion, either spontaneously or around some foreign body as a nucleus.

ETIOLOGY.—1. *Predisposing causes.*

(1) Chronic inflammation of nasal mucous membrane.

2. *Exciting causes.*

(1) Presence of a fragment of inspissated mucus.

(2) Presence of a foreign body.

PATHOLOGY.—

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|------------------------|---|------------------|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Nose.</i> | <i>a.</i> Mucous membrane reddened, inflamed, eroded (superficial). |
| | | | <i>b.</i> Presence of calculus, movable: |
| | | | (<i>a</i>) <i>Size.</i> Small shot to hazel-nut. |
| | | | (<i>b</i>) <i>Shape.</i> Generally elongated, irregular, ovoid (<i>Bosworth</i>). |
| | | | (<i>c</i>) <i>Surface.</i> Hard, usually rough, mammillated, may be smooth; softer towards the centre. |
| | | | (<i>d</i>) <i>Color.</i> Grayish black. |
| | | | (<i>e</i>) <i>Composition.</i> <i>a.</i> Mucus. |
| | | | <i>β.</i> Phosphate of lime. |
| | | | <i>γ.</i> Foreign body (<i>occasional</i>). |
| | | | (<i>f</i>) <i>Site.</i> Inferior meatus (<i>usual</i>). |

SYMPTOMS.—

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| 1. Local. | { | (1) Nose. | a. Respiration obstructed, partially. |
| | | | b. Discharge purulent, profuse, offensive at times. |
| | | | c. Neuralgia occasional. |
| | | | d. Paralysis occasional. |
| | | | e. Presence of calculus. |
| | | | f. Growth slow. |

DIAGNOSIS.—From carcinoma of the nose.

Nasal Calculus.

1. May occur at any age.
2. Usually situated in the lower meatus.
3. The probe when introduced impinges upon a hard substance which emits a grating sensation.
4. Mucous membrane intensely inflamed, with superficial ulceration, the edges of which are not raised nor indurated.
5. Ulceration shows no disposition to invade the surrounding tissues.
6. Nasal discharge profuse, purulent, at times offensive.
7. Attended with occasional neuralgia, never excessive.
8. No cachexia.
9. No emaciation.
10. Slight destruction of tissue with no deformity.
11. Prognosis good.

Carcinoma of the Nose.

1. Usually occurs after middle life.
2. Usually begins in the upper nasal passages.
3. The probe does not reveal a hard body, and elicits no grating sensation.
4. Mucous membrane intensely inflamed, ulcerated; the edges of ulcer raised, hard, ragged, and base sanious, corroded.
5. Ulceration soon shows characteristic disposition to spread to adjacent tissues.
6. Nasal discharge profuse, sero-sanguinolent, acrid, usually offensive.
7. Pain severe, lancinating, constant.
8. Attended with marked cachexia.
9. Progressive emaciation.
10. Vast destruction of tissue with great deformity.
11. Prognosis fatal.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical (under anæsthesia).*(1) *Removal.*

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|---|-------------------|
| a. By forceps (small stones). | } (large stones). |
| b. Crushing by lithotrite | |
| c. By forceps | |
| d. By tepid alkaline lotions | |
| e. Division of external nose (if crushing is impossible). | |

12. *Parasites of the Nose.*DERIVATION.—*Παρά*, upon; *σιτος*, a grain.SYNONYMS.—1. *Myasis narium.*

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| 2. Peenash (India). | } (French). |
| 3. Würmer in der Nasenhöhle (German). | |
| 4. Myase du nez | |
| 5. Larves dans les fosses nasales | |
| 6. Larve nella fosse nasali (Italian). | |

DEFINITION.—Peculiarly a disease of the tropics, and seldom encountered elsewhere, which is characterized by extensive destruction of the soft nasal tissues and occasionally of the bony framework of the nose, usually by maggots hatched from eggs deposited within or close to the

nostrils by various dipterous insects, though at times occurring from the inroads of other insects, and accompanied by a train of grave symptoms frequently ending in death.

ETIOLOGY.—1. *Exciting causes.*

- (1) Deposit of the eggs of certain flies.
 - a. Muscidae.
 - b. Screw-worm fly (*Lucilia macellaria*. Powell, Todd).
- (2) Penetration of nose by insects.
 - a. Leeches.
 - b. Ascarides.
 - c. Earwigs.
 - d. Centipedes.

PATHOLOGY.—

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|-----------------|--------------|----------------------------|--|
| 1. Macroscopic. | { | (1) Nose. | a. Mucous membrane intensely congested, eroded, ulcerated. |
| | | | b. Cartilages necrosed. |
| | | (2) Cranial bones. | a. Ethmoid } necrosed. |
| | | | b. Sphenoid } |
| | | c. Palatine } | |
| | (3) Pharynx. | Mucous membrane congested. | |

SYMPTOMS.—

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|-------------|------------------|---|--|--------------------------|
| 1. Local. | { | (1) Nose. | a. Respiration obstructed, oral. | |
| | | | b. Discharge sero-sanguinolent, later stage purulent, profuse, very offensive, containing larvæ. | |
| | | | c. Sneezing frequent. | |
| | | | d. Subjective sensations, tickling, itching of nostrils, formication, sense of boring. | |
| | | | e. Epistaxis frequent. | |
| | | | f. Pain at root of nose and in forehead, constant, severe, throbbing. | |
| | | | g. Formation of abscesses and ulcers on and around nose, with discharge of larvæ. | |
| | | | h. Skin swollen, red, erysipelatous. | |
| | | | i. Deformity frequent, from destruction of bridge and septum. | |
| | | | (2) Face. | Skin red, œdematous. |
| | | | (3) Eyes. | a. Conjunctivæ inflamed. |
| | | | | b. Lachrymation profuse. |
| | | c. Eyelids red, œdematous. | | |
| 2. General. | { | (1) Chills or chilly sensations. | | |
| | | (2) Pulse rapid, feeble. | | |
| | | (3) Temperature 102°–104° F. | | |
| | | (4) Cerebral excitement intense (occasional). | | |
| | | | (a) Delirium. | |
| | | | (b) Jactitation. | |
| | (c) Convulsions. | | | |
| | (5) Death. | | | |

COURSE.—Rapid.

COMPLICATION.—Erysipelas.

CAUSE OF DEATH.—Meningitis.

DIAGNOSIS.—Plain. Presence of larvæ in nose and discharge.

PROGNOSIS.—Grave.

TREATMENT.—1. *Surgical.* (1) *Blake's method.*

a. Inhalation.

(a) Vapor of chloroform (*best*).

(b) Vapor of ether.

- (2) *Delavan's method.*
a. Mild alkaline wash (*by spray*).
b. Cocaine, to complete local insensibility.
c. Inhalation of vapor of chloroform.
d. Spray of chloroform.
 (3) Trephining of frontal sinuses (*extreme cases*).

13. *Foreign Bodies in the Nose.*

- SYNONYMES.—1. Corpora adventitia in naribus.
 2. Corps étrangers des fosses nasales (*French*).
 3. Fremdkörper in der nasenhöhle (*German*).
 4. Corpi stranieri nelle narici (*Italian*).

DEFINITION.—The lodgement of foreign substances of various kinds in the nasal channels, generally by access through the nostrils, but occasionally, though rarely, by penetration of the integument from without, or by passage upward from the pharynx.

ETIOLOGY.—1. *Exciting causes.*

- (1) Lodgement of extraneous substances (*stones, peas, teeth, buttons, beans, corn, vomited material, etc.*).
 (2) Sequestra from diseased bone.

PATHOLOGY.—

1. *Macroscopic.* { (1) *Nose.* *a.* Mucous membrane congested, swollen; later eroded, covered with profuse granulations.
b. Presence of foreign body, often embedded in swollen tissues.
(a) Site. Inferior meatus (*usual*).
c. Skin slightly swollen, reddened.

SYMPTOMS.—

1. *Local.* { (1) *Nose.* *a.* Respiration occluded, partial or complete.
b. Discharge sero-mucous, profuse, unilateral in early stage, later muco-purulent, bloody, profuse, fetid, containing small, flocculent, whitish masses of inspissated mucus (*Bosworth*).
c. Pain, occasional facial neuralgia; extreme sensitiveness of the mucous membrane.
d. Sneezing frequent.
e. Chronic coryza persistent, unilateral.
f. Nostrils eroded (*Schech*).
 (2) *Mouth.* *a.* Cough short, dry.
b. Lips eroded (*Schech*).

DURATION.—Short.

DIAGNOSIS.—From purulent rhinitis of children.

Foreign Body in the Nose.

1. May occur at any age.
2. Always unilateral.
3. Mucous membrane extremely sensitive.
4. Mucous membrane congested, swollen, eroded, covered with profuse granulations.
5. Nasal stenosis immediate.

Purulent Rhinitis of Children.

1. Rare before the third and after the sixth year.
2. Always bilateral.
3. Mucous membrane not sensitive.
4. Mucous membrane swollen, dark red, covered with crusts and flakes of mucus.
5. No marked stenosis at first.

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| <p>6. Probe reveals the presence of a foreign body.</p> <p>7. Nasal discharge sero-mucous at first, later profuse, purulent, blood-stained, fetid, containing small, flocculent, whitish masses.</p> <p>8. Course very acute.</p> <p>9. No sequelæ as a rule.</p> | <p>6. Probe reveals the absence of any foreign body.</p> <p>7. Nasal discharge thick, yellow, muco-purulent, slightly offensive, never blood-stained.</p> <p>8. Course very chronic.</p> <p>9. Frequently followed by atrophic rhinitis.</p> |
|---|--|

PROGNOSIS.—Good.

- TREATMENT.—1. *Preparatory.* (1) *To cleanse nostrils and remove crusts.*
- a. Tepid, mild, alkaline solutions in spray.
- (2) *For hypersensitiveness.*
- a. Application of cocaine.
 - b. Administration of chloroform (if body is impacted).
2. *Surgical.* (1) *To remove body.*
- a. Douches through unaffected nostril.
 - (a) Tepid, alkaline solutions.
 - b. Vigorous blowing of nose.
 - c. Politzer's bag (in infants).
 - d. Hooked probe.
 - e. Forceps.
 - f. Wire-loop and tape (*Sajous*).
3. *After treatment.* (1) *Daily weak disinfectant washes.*
- a. Permanganate of potash.

B. THE NASO-PHARYNX.

DISEASES OF THE NASO-PHARYNX.

1. *Chronic Catarrh of the Naso-Pharynx.*

DERIVATION.—*Karâphôos*, a flux.

SYNONYMES.—

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|--|---|
| <p>1. Tornwaldt's disease.</p> <p>2. Post-nasal catarrh.</p> <p>3. Reto-nasal catarrh.</p> <p>4. Naso-pharyngeal catarrh.</p> <p>5. American catarrh.</p> <p>6. Catarrhal inflammation of the naso-pharynx.</p> <p>7. Follicular disease of the naso-pharyngeal space.</p> | <p>8. Catarrhus longus pharyngis nasalis.</p> <p>9. Catarrhe chronique du pharynx nasal (<i>French</i>).</p> <p>10. Chronischer catarrh des nasen-rachenraumes (<i>German</i>).</p> <p>11. Catarro cronico della faringe nasale (<i>Italian</i>).</p> |
|--|---|

DEFINITION.—A very common affection of the naso-pharynx, characterized by a hyperstimulation of the glandular structure of the pharyngeal vault as evinced by a profuse secretion of mucus, or mucopus, giving rise to an irritation of the tissues more or less pronounced, associated with a constant desire to hawk and expectorate.

- VARIETIES.—1. Catarrh of the bursal cavity alone (*Tornwaldt's disease*).
2. Diffuse (involving all glands of posterior wall of naso-pharynx).

ETIOLOGY.—1. *Predisposing causes.*

- (1) Chronic inflammation of the so-called "pharyngeal bursa" (*Tornwaldt*).
- (2) Chronic inflammation of the glands of the pharyngeal vault (*Bosworth*).
- (3) Diseased condition of nasal mucous membrane.
 - a. Hypertrophic rhinitis.
 - b. Atrophic rhinitis.
- (4) Gastro-intestinal disturbance.
- (5) Living in damp houses.

2. *Exciting causes.*

- (1) Exanthemata.
 - a. Measles.
 - b. Scarlet fever.
- (2) Atmospheric changes, fall and spring months.
- (3) Dusty atmosphere (*Mackenzie*).
- (4) A damp climate, presence of salt water.

PATHOLOGY.—

- | | | | | |
|------------------------|---|--------------------------|--|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Naso-pharynx.</i> | a. <i>Vault.</i> | (a) Mucosa bulging, giving vault a mammillated contour with deep furrows. |
| | | | | (b) Glandular structure hyperplastic; formation of bursal-like cavity. |
| | | | b. <i>Posterior wall.</i> | a. Mucous membrane inflamed, covered with raised reddish granulations and varicose veins; dotted with moist, yellowish-white, adherent masses. |
| | | (2) <i>Oro-pharynx.</i> | a. Mucous membrane congested, granular. | |
| | | | b. Faucial pillars infiltrated, thickened. | |
| 2. <i>Microscopic.</i> | { | (1) <i>Naso-pharynx.</i> | a. <i>Mucous membrane.</i> | (a) Fibrous tissue hyperplastic. |
| | | | | (b) Blood-vessels hyperplastic. |
| | | | | (c) Lymph follicles scanty, small. |

SYMPTOMS.—

- | | | | | |
|------------------|---|-------------------------|--|--|
| 1. <i>Local.</i> | { | (1) <i>Oro-pharynx.</i> | a. Voice muffled; articulation imperfect. | |
| | | | b. Discharge muco-purulent, profuse, thick, yellow or grayish, irritating, odorless. | |
| | | | c. Subjective sensations, constant dripping in posterior portion of throat; desire to swallow. | |
| | | | d. Pain in throat dull, aching. | |
| | | | e. Hawking in morning. | |
| | | | f. Nausea | |
| | | | g. Vomiting | |
| | | | h. Hemorrhage, slight bleeding from enlarged glands (<i>occasional</i>). | |
| | | | (2) <i>Ears.</i> | a. Hearing impaired (<i>occasional</i>). |

2. *General.* { (1) Malaise general.
 (2) Headache occasional (*Tornwaldt*).
 (3) Tendency to take cold (*marked*).

DURATION.—Long.

DIAGNOSIS.—Plain. By rhinoscopic mirror.

PROGNOSIS.—Good.

TREATMENT.—1. *Prophylactic.* (1) Wearing of suitable clothing.
 (2) Proper care of the skin.
 (3) Daily cold bathing.
 (4) Change of residence to warm, dry climate.

2. *Local.* (1) *Astringent washes and douches.*
a. Dobell's solution.
b. Sulpho-carbolate of zinc.
c. Boric acid.
d. Carbolic acid.
e. Potassium permanganate.
f. Compound alkaline wash (*Mackenzie*).
 (2) *Astringent applications on probe once or twice weekly.*
a. Glycerole of tannin.
b. Tincture of iodine.
c. Solution of silver nitrate, grs. 5-10 to $\bar{3}$ i water.
d. Monochlor-acetic acid.
e. Lactic acid, grs. 10-20 to $\bar{3}$ i water.
 (3) *Astringent insufflations.*
a. Pale catechu.
b. Persulphate of iron (one part to 3-5 of starch).
c. Eucalyptus (one part to 2-3 of starch).
 (4) *Application of caustics.*
a. Galvano-cautery electrode (*Tornwaldt*).
 3. *General.*—(1) Tincture of cubebs.
 (2) Cod-liver oil.
 (3) Phosphate of iron.
 (4) Sulphur mineral water, small amounts.
a. Harrogate water.

DIET.—Non-irritating; absence of spices and alcohol.

FORMULÆ.—1. Compound alkaline wash (*altered, Mackenzie*).

R Sod. bicarb.,
 Sod. biborat.,
 Sod. chloride, ãã gr. ii-vii;
 Sacch. alb., gr. v-xv. M.
 Ft. chart. No. 1.

S.—Dissolve in one-half tumbler of tepid water.

2. *Neoplasms of the Naso-pharynx.*

DERIVATION.—*Néος*, new; *πάσχα*, a growth.

SYNONYMES.—1. Tumors of the naso-pharynx.

2. Growths of the naso-pharynx.

DEFINITION.—Hyperplasia and new formation of tissue within the cavity of the naso-pharynx, giving rise to growths of various sizes and degrees of malignancy, with their accompanying characteristic trains of symptoms.

- VARIETIES.—1. Benign.
2. Malignant.

(1) BENIGN NEOPLASMS OF THE NASO-PHARYNX.

DEFINITION.—Growths of the naso-pharynx which show no inherent tendency to cause destruction of life, and are not productive of cachectic condition of the system, but which are capable of giving rise to symptoms of great gravity from excessive size and development, and which are frequently followed by disastrous effects upon the normal development of the body.

- VARIETIES.—1. Adenoid vegetations.
2. Dermoid cyst.
3. Fibroma.
4. Fibro-mucous polyp.

a. Adenoid Vegetations of the Naso-pharynx (*Wilhelm Meyer*).

DERIVATION.—'Αδύη, a gland; εἶδος, resemblance.

SYNONYMS.—

- | | |
|---|--|
| 1. Retro-nasal adenoma. | 8. Hypertrophy of the lymphoid tissue of the naso-pharynx. |
| 2. Post-nasal adenoma. | 9. Tumores glandulosi pharyngis nasalis. |
| 3. Hypertrophy of Luschka's tonsil.* | 10. Tumeurs adénoides du pharynx nasal (<i>French</i>). |
| 4. Hypertrophy of the pharyngeal tonsil. | 11. Adenoide vegetationem des nasenrachenraumes (<i>German</i>). |
| 5. Papilloma of the pharynx. | 12. Tumori adenoidi della faringe nasale (<i>Italian</i>). |
| 6. Glandular hypertrophy of the vault of the pharynx. | |
| 7. Adenoid growths of the vault of the pharynx. | |

DEFINITION.—An hypertrophy of the lymphoid tissue found in abundance normally during childhood in the vault of the pharynx, occurring usually between the ages of four and fifteen years, though occasionally encountered after this period, and even as late as the twenty-fifth year, running a course of long duration, and giving rise to a series of characteristic symptoms and sequelæ.

- VARIETIES.—1. Hypertrophy of the pharyngeal tonsil alone (*rare*).
2. Hypertrophy of all adenoid tissue of the naso-pharynx.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Heredity.
- (2) Age, childhood.
- (3) Climatic influence.
- (4) Lack of proper nourishment.
- (5) Bad hygienic surroundings.
- (6) Poor ventilation of bedchamber.

2. *Exciting causes.*

- (1) Various diseases.
 - a.* Diphtheria.
 - b.* Scarlet fever.
 - c.* Whooping-cough.

* "Luschka's tonsil is the upper part of the ring of lymphoid tissue described by Waldeyer and Bickel, extending along the roof and lateral walls of the pharynx from the basilar process to the base of the tongue, and including the masses of lymphoid tissue known as the 'pharyngeal tonsil,' the 'tubal tonsils' of Gerlach, the faucial tonsils, and the lymphoid masses improperly called the 'lingual tonsils.'"

PATHOLOGY.—

1. Macroscopic.

- (1) *Naso-pharynx.*
 - a. Mucous membrane hypertrophied, congested, reddened.
 - b. Presence of single tumor (*first variety*).
 - (a) *Size.* Grain of wheat to almond kernel.
 - (b) *Surface.* Broad, covered with furrows running in antero-posterior direction; of a fleshy consistency; showing retention cysts (*occasional*); covered with thick, viscid, mucopurulent discharge.
 - (c) *Color.* Pale, pinkish.
 - (d) *Origin.* Basilar process of occiput.
 - (e) *Attachment.* Sessile.
 - c. Presence of mass of tumors (*second variety*).
 - (a) *Size.* Shot to pea, or larger.
 - (b) *Surface.* Mammillated, soft, velvety, easily bleeding.
 - (c) *Color.* Deep red at base, reddish gray, pink, or yellowish at apex.
 - (d) *Origin.*
 - a. Roof and walls of naso-pharynx.
 - β. Posterior margin of nasal septum (*rare*).
 - (e) *Attachment.* Pedunculated.
- (2) *Oro-pharynx.*
 - a. Mucous membrane reddened, congested, irritable, dotted with enlarged follicles, bathed in mucus.
 - b. Faucial tonsils hypertrophied.
 - c. Faucial pillars thickened, covered with fine granular follicles.
 - d. Soft palate thickened, bulged forward, immovable.
 - e. Uvula relaxed (*occasional*).
 - f. Palatine arch highly vaulted.

SYMPTOMS.—

- | | | | | |
|------------------------|--|-------------------------|---|--|
| 1. Local. | { | (1) <i>Nose.</i> | <i>a.</i> Respiration obstructed, oral, snoring at night.
<i>b.</i> Discharge mucous or muco-purulent, constant; accumulation of mucus in nose.
<i>c.</i> Anosmia partial or complete.
<i>d.</i> Tendency to repeated acute coryzas, especially in winter. | |
| | | (2) <i>Oro-pharynx.</i> | <i>a.</i> Mouth open or half open, dry.
<i>b.</i> Lips parched; upper excoriated.
<i>c.</i> Voice stuffy, defective in resonance.
<i>d.</i> Cough nasal, nocturnal, obstinate, dry; laryngeal stridor or cough (<i>occasional</i>).
<i>e.</i> Expectoration mucous or muco-purulent, copious, thick, tenacious, at times blood-streaked.
<i>f.</i> Hawking frequent. | |
| | | (3) <i>Face.</i> | <i>a.</i> Skin pale; anæmia marked.
<i>b.</i> Expression pinched, drawn, dull, stupid, idiotic.
<i>c.</i> Spasmodic contractions (<i>occasional</i>). | |
| | | (4) <i>Eyes.</i> | <i>a.</i> Dull, heavy-looking.
<i>b.</i> Conjunctivæ pale. | |
| | | (5) <i>Ears.</i> | <i>a.</i> Hearing partially blunted
<i>b.</i> Otalgia nocturnal
<i>c.</i> Otorrhœa purulent
<i>d.</i> Tinnitus aurium | } (<i>due to catarrh of Eustachian tube and middle ear</i>). |
| | | (6) <i>Neck.</i> | <i>a.</i> Lymphatics enlarged. | |
| | | (1) | Malaise general; languor great. | |
| | | (2) | Appetite capricious. | |
| | | (3) | Fever slight. | |
| | | 2. General. | { | (4) | Headache frequent, frontal and temporal dull; feeling of weight and pressure in posterior portion of head; increased by cerebration. |
| (5) | Vomiting occasional. | | | |
| (6) | Disposition sullen, fretful, irritable. | | | |
| (7) | Night sweats occasional (<i>Chatellier, Hooper</i>). | | | |
| (8) | Growth stunted; child puny-looking. | | | |
| (9) | Enuresis occasional. | | | |
| (10) <i>Pulmonary.</i> | <i>a.</i> Respiration frequent, shallow, labored, intermittent at night. | | | |
| (11) <i>Cardiac.</i> | <i>a.</i> Palpitation.
<i>b.</i> Rhythm of sound disturbed, first, shortened; second, lengthened (<i>Allen</i>). | | | |
| (12) <i>Nervous.</i> | <i>a.</i> Nasal neurasthenia or aprosexia (<i>Guye</i>).
(<i>a</i>) Listlessness.
(<i>b</i>) Mental apathy.
(<i>c</i>) Impairment of memory.
(<i>d</i>) Drowsiness.
<i>b.</i> Nightmare (<i>Chatellier</i>).
<i>c.</i> Melancholia.
<i>d.</i> Insomnia, partial; inability to sleep on one or other side. | | | |

DURATION.—Long.

SEQUELÆ.—1. *Osseous system.*

- (1) Poor development of chest.
- (2) Deformity of chest.
 - a.* Pigeon-breast.
- (3) Poor development of upper jaw (*Hooper*).
- (4) Deformity of upper jaw.
 - a.* Crowding and overlapping of teeth.

2. *Aural.*

- (1) Purulent otitis }
(2) Deafness } (*due to middle-ear disease*).

3. Retardation of dentition and puberty.

4. Hypertrophy of the tonsils.

5. Mutism (*Harrison Allen*).

6. *Nervous system.*

(1) Chorea.

DIAGNOSIS.—1. From fibroma of the naso-pharynx.

Adenoid Vegetations of the Naso-Pharynx.

1. Very frequent.
2. Usually met with between the ages of four and fifteen years.
3. Vault of pharynx occupied by mass of vegetations, soft and velvety to the feel.
4. Growths confined to the vault and posterior wall of pharynx.
5. No erosion and destruction of surrounding tissues.
6. Expression dull, idiotic.
7. Epistaxis rare or entirely absent.
8. Pharyngeal discharge abundant, muco-purulent, thick, tenacious, at times blood-streaked, never offensive.
9. No tendency to spontaneous disappearance.
10. Associated with serious defects of development.

Fibroma of the Naso-Pharynx.

1. Extremely rare.
2. Usually met with between the ages of fifteen and twenty-five years.
3. Vault of pharynx occupied by a hard, unyielding tumor, smooth, irregularly rounded.
4. Frequently attended with prolongations downward into the pharynx and upward into the nasal cavities.
5. Frequently associated with erosion and destruction of adjacent structures.
6. Expression peculiar, "frog-face," from broadening of nasal bridge.
7. Epistaxis frequent and profuse.
8. Pharyngeal discharge abundant, purulent, bloody, occasionally fetid.
9. Tends to disappear spontaneously at the twenty-fifth year.
10. Not seriously affecting development.

2. From sarcoma of the naso-pharynx (*vide*).

PROGNOSIS.—Favorable under proper treatment.

TREATMENT.—1. *Medical.* (1) *Local.*

a. Astringent douches.

- (a) Tannin.
- (b) Zinci sulpho-carbolate, gr. 2 to $\bar{\text{3i}}$ water.
- (c) Alumen, gr. 3 to $\bar{\text{3i}}$ water.
- (d) Boro-glyceride, $\bar{\text{3i}}$ to $\bar{\text{3i}}$ water.
- (e) Resorcin, gr. 2 to $\bar{\text{3i}}$ water.

b. Painting of surface.

- (a) Iodine.

c. Application of caustics.

- (a) Chromic acid.
- (b) Solid silver nitrate stick.

(2) *General.* *a. Tonics.*

- b. Cod-liver oil.*
- c. Tincture ferric chloride.*

2. *Surgical.* (1) *Preparatory.* *a. Removal of hypertrophied faucial tonsils.*

(2) *Operative.*

- a. Ablation with finger in infant (under ether anæsthesia).
- b. Removal by Chiaris's snare (under cocaine anæsthesia).
- c. Removal by Catti's forceps with Marchoni's gag (under chloroform anæsthesia).
- d. Removal by curetting with finger (chloroform anæsthesia. Caport, Dalby, Hooker).
- e. Removal by post-nasal curette.
- f. Galvano-cauterization with Voltorini's gouge.
- g. Electrolysis (*J. R. Briggs*).

3. *After treatment.*
 - (1) Daily use of alkaline spray.
 - (2) Rest in bed for three or four days.

DIET.—Fluid or semifluid.

FORMULÆ.—Tannic acid douche.

R Acidi carbolici, gr. i;
 Acidi tannici, gr. xl;
 Sodii biborat., gr. xxx;
 Glycerini, ʒss;
 Aquæ, ad ʒiv. M.

S.—Use in spray twice daily.

b. Dermoid Cyst of the Naso-Pharynx.

DERIVATION.—*Δέρμα*, the skin.

SYNONYME.—Embryonal cyst of the naso-pharynx.

DEFINITION.—A rare, congenital growth of the naso-pharynx, composed, histologically, of misplaced fragments of embryonic tissues, and giving rise, clinically, to a train of rather obscure symptoms.

ETIOLOGY.—Misplacement of embryonal tissue.

PATHOLOGY.—

1. *Macroscopic.*

{	(1) <i>Naso-pharynx.</i> <ol style="list-style-type: none"> a. Presence of tumor, consisting of (a) limiting sac, with (b) embryonal contents. (a) <i>Site.</i> Vault of pharynx.
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DIAGNOSIS.—Plain.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*

- a. By snare (*Chiaris's*).
- b. By curette.

c. Fibroma of the Naso-Pharynx.

DERIVATION.—*Fibra*, a filament.

SYNONYMES.—1. Fibrous tumor of the naso-pharynx.

2. Fibrous polyp of the naso-pharynx.

3. Polypi fibrosi pharyngii nasalis.

4. Polypi naso-pharyngii.

5. Polypes fibreux du pharynx nasal (*French*).

6. Nasenrachenpolypen (*German*).

7. Polipi fibrosi della faringe nasale (*Italian*).

DEFINITION.—An extremely rare growth of the naso-pharynx peculiar to youth, and most frequently occurring in males about the age of puberty, although developing at any time between the ages of fifteen and twenty-five years, and consisting in the irregular development of a tissue which is normally abundant in that region.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Scrofulous diathesis.
- (2) Age, adolescence, fifteenth to twenty-fifth year.
- (3) Sex, male.

2. *Exciting causes.*

- (1) Bad hygienic surroundings.
- (2) Any local irritant.

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| | { | (1) <i>Naso-pharynx.</i> |
| | | a. Mucous membrane inflamed, eroded. |
| | | b. Presence of tumor. |
| | | (a) <i>Size.</i> Small. |
| | | (b) <i>Surface.</i> Smooth, irregularly rounded, hard, unyielding, often ulcerated, with prominent blood-vessels, covered with sanious secretion; with prolongations into nasal cavity, antrum, and pharynx; bleeding readily. |
| 1. <i>Macroscopic.</i> | | (c) <i>Color.</i> Purple, dark red to light pink. |
| | | (d) <i>Origin.</i> a. Basilar process of occiput. |
| | | β. Body of sphenoid. |
| | | (e) <i>Attachment.</i> Pedunculated. |
| | | c. Deformity of surrounding parts. |
| | { | (1) <i>Tumor.</i> a. Net-work of dense, white, fibrous tissue. |
| 2. <i>Microscopic.</i> | | b. Blood-vessels small, few in number, with brittle walls, surrounded by fibrous net-work. |

SYMPTOMS.—

- | | | | |
|--------------------|---|--|---|
| 1. <i>Local.</i> | { | (1) <i>Nose.</i> | a. Respiration completely obstructed; attacks of dyspnœa (<i>occasional</i>). |
| | | | b. Discharge muco-purulent, at times offensive. |
| | | | c. Anosmia complete. |
| | | | d. Epistaxis frequent; slight oozing to excessive flow. |
| | | | e. Deformity, "frog-face," apparent broadening of nasal bridge. |
| | | (2) <i>Oro-pharynx.</i> | a. Voice muffled; articulation thick, indistinct. |
| | | | b. Expectoration muco-purulent or purulent, abundant, thick, tenacious, at times blood-stained, at times fetid. |
| | | | c. Breath foul (<i>occasional</i>). |
| | | | d. Hawking frequent. |
| | | | e. Deglutition difficult, painful; dysphagia severe (<i>occasional</i>). |
| | f. Presence of tumor in pharynx. | | |
| | g. Growth slow; perforation of cranium (<i>rare</i>). | | |
| | { | (3) <i>Face.</i> | Expression peculiar. |
| (4) <i>Eye.</i> | | a. Epiphora. | |
| | | b. Exophthalmos (<i>occasional</i>). | |
| | { | (5) <i>Ears.</i> | Deafness in one or both sides (<i>from pressure on Eustachian tube</i>). |
| | | | |
| 2. <i>General.</i> | { | (1) | Malaise general; great sense of fatigue. |
| | | (2) | Debility profound. |
| | | (3) | Vertigo occasional. |
| | | (4) | Drowsiness marked. |
| | | (5) | Headache frequent. |

DURATION.—Long. Tend to become absorbed at the age of twenty-five years.

CAUSE OF DEATH.—1. Asthenia.
2. Asphyxia.
3. Hemorrhage.

DIAGNOSIS.—1. From adenoid vegetation of the naso-pharynx (*vide*).
2. From sarcoma of the naso-pharynx (*vide*).

PROGNOSIS.—Unfavorable (*unless early treated*).

TREATMENT.—1. *Surgical.* (1) *Extirpation (through natural passages).*
a. By electric cautery, once weekly.
(a) Galvanic *écraseur* at moderate degree of heat.
b. By electrolysis, ten to fifteen minutes every day or two.
(a) One or more curved needles attached to negative pole, introduced into tumor.
(b) Positive pole to sternum.
c. By forceps.
d. By fingers.
e. By steel wire *écraseur*.

d. Myxo-Fibroma of the Naso-Pharynx.

DERIVATION.—*Múḡa*, mucus; *fibra*, a filament.

SYNONYME.—Fibro-mucous polyp of the naso-pharynx.

DEFINITION.—A very rare growth of the naso-pharynx, composed of a mixture of fibrous and myxomatous tissues, and characterized by an absence of bleeding and by little or no tendency to return after removal.

ETIOLOGY.—1. *Predisposing causes.*
(1) Age, fifteen to thirty.
(2) Sex, female.
2. *Exciting causes.*
(1) Traumatism.
(2) Irritation of the mucous membrane.

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| | { | (1) <i>Naso-pharynx.</i> a. Mucous membrane inflamed, red. |
| | | b. Presence of tumor. |
| | | (a) <i>Size.</i> Pigeon's to hen's egg. |
| | | (b) <i>Surface.</i> Soft, smooth, ovoid, movable. |
| 1. <i>Macroscopic.</i> | | (c) <i>Color.</i> Dark red, reddish gray, muddy, opaque. |
| | | (d) <i>Origin.</i> a. Upper portion of posterior nares. |
| | | β. Septum (<i>Panas, Trélat</i>). |
| | | γ. Inferior turbinated bone (<i>Coyne</i>). |
| | | (e) <i>Attachment.</i> Pedunculated. |
| 2. <i>Microscopic.</i> |  | { | (1) Tumor. a. White fibrous connective tissue. |
| | b. Myxomatous tissue (<i>large amount</i>). | |
| | c. Cells. (a) Round.
(b) Spindle. | |

SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Respiration completely obstructed, oral.
b. Discharge muco-purulent, odorless.
c. Anosmia complete.
- (2) *Oro-pharynx.* a. Voice nasal; articulation impaired.
b. Expectoration muco-purulent, profuse.
c. Deglutition slightly interfered with.
d. Presence of tumor.
e. Growth rapid.
- (3) *Ear.* a. Deafness (*occasional*).

DURATION.—Short.

DIAGNOSIS.—Plain.

PROGNOSIS.—Good.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*
a. Evulsion.
(a) By forceps.
b. By Jarvis's cold-wire écraseur.

(2) MALIGNANT NEOPLASMS OF THE NASO-PHARYNX.

DEFINITION.—Growths of the naso-pharynx which show a decided tendency to spread to the surrounding tissues with the production sooner or later of a profound cachectic condition of the system, and which invariably return after removal, resulting finally in death after a course of but short duration.

VARIETIES.—Sarcoma.

a. Sarcoma of the Naso-Pharynx.

DERIVATION.—Σάρξ, flesh.

DEFINITION.—A very rare growth of the naso-pharynx usually occurring at some period during adolescence or early adult life, associated with characteristic symptoms of great gravity, always recurring after removal, and giving rise to secondary deposits in other portions of the body, and rapidly passing to a fatal termination.

ETIOLOGY.—1. *Predisposing causes.*

(1) Age, earlier years of life.

(2) Sex, male.

2. *Exciting causes.*

(1) Traumatism.

(2) Irritation of the mucous membrane.

PATHOLOGY.—

1. *Macroscopic.* { (1) *Naso-pharynx.* a. Mucous membrane inflamed, reddened, ulcerated.
b. Presence of tumor.
(a) *Size.* Large.
(b) *Shape.* Pyriform.
(c) *Surface.* Rounded, somewhat lobulated, soft, pultaceous, with prolongations into nasal cavities.
(d) *Color.* Grayish yellow, muddy, or pinkish.
(e) *Origin.* Basilar process of occiput.
(f) *Attachment.* Pedunculated (*usual*).
2. *Microscopic.* { (1) *Tumor.* a. Sarcomatous tissue.
b. Cells. (a) Round.
(b) Spindle.

SYMPTOMS.—

- | | | | |
|--------------------|-----------------|-----------------------------|---|
| 1. <i>Local.</i> | { | (1) <i>Nose.</i> | <i>a.</i> Respiration obstructed, oral; recurrent attacks of dyspnoea. |
| | | | <i>b.</i> Coryza constant. |
| | | | <i>c.</i> Epistaxis occasional. |
| | { | (2) <i>Oro-pharynx.</i> | <i>a.</i> Voice altered; articulation imperfect. |
| | | | <i>b.</i> Post-nasal catarrh constant. |
| | | | <i>c.</i> Discharge sero-mucous, thin, watery, ichorous, usually quite offensive. |
| | | | <i>d.</i> Pain severe, shooting, lancinating, referred to ear, worse at night. |
| | | | <i>e.</i> Dysphagia severe. |
| | | | <i>f.</i> Presence of tumor. |
| | | | <i>g.</i> Growth rapid; recurrence after removal. |
| | (3) <i>Ear.</i> | <i>a.</i> Hearing impaired. | |
| 2. <i>General.</i> | { | (1) Malaise general. | |
| | | (2) Prostration great. | |
| | | (3) Cachexia general. | |
| | | (4) Emaciation marked. | |

DURATION.—Short.

DIAGNOSIS.—1. From adenoid vegetation of the naso-pharynx.

Sarcoma of the Naso-Pharynx.

1. Very rare.
2. Usually develops in early adult life.
3. Vault of the pharynx occupied by a tumor, rounded, soft, pultaceous, ulcerated, easily made to bleed.
4. Very painful.
5. Attended with frequent and severe spontaneous hemorrhage.
6. Pharyngeal discharge sero-mucous, thin, watery, ichorous, very offensive.
7. Attended with profound cachexia.
8. Course short.
9. No effect upon the development of the body.
10. Prognosis fatal.

Adenoid Vegetation of the Naso-Pharynx.

1. Very common.
2. Usually develops between the fourth and fifteenth years.
3. Vault of the pharynx occupied by a mass of vegetations, soft and velvety, and bleeding readily when touched.
4. Painless.
5. Attended with no spontaneous hemorrhage.
6. Pharyngeal discharge mucopurulent, thick, copious, never offensive.
7. No cachexia.
8. Course very chronic.
9. Associated with retarded development of the body.
10. Prognosis favorable as regards life.

2. From fibroma of the naso-pharynx.

Sarcoma of the Naso-Pharynx.

1. Usually develops in early adult age.
2. Vault of the pharynx occupied by a tumor, rounded, soft, pultaceous, ulcerated.
3. Very painful.
4. Epistaxis occasional.
5. Occasionally sends prolongations into the nose.

Fibroma of the Naso-Pharynx.

1. Usually develops about the age of puberty.
2. Vault of the pharynx occupied by a hard, unyielding tumor, smooth, irregularly rounded.
3. Painless.
4. Epistaxis frequent and profuse.
5. Frequently sends prolongations into the pharynx and nose.

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| 6. Pharyngeal discharge thin, sero-mucous, watery, ichorous, very offensive.
7. Attended with profound cachexia.
8. Usually no external deformity.
9. Course rapid. | 6. Pharyngeal discharge mucopurulent, abundant, thick, tenacious, occasionally fetid.
7. No cachexia.
8. Characteristic external deformity "frog-face."
9. Course chronic. |
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PROGNOSIS.—Grave.

TREATMENT.—1. *Surgical.* (1) *Extirpation.*

a. Cold-wire snare (*Jarvis's*).

b. Galvano-cautery.

Diagnostic Table of Tumors of the Naso-Pharynx.

	Adenoid Vegetations.	Dermoid Cyst.	Fibroma.	Myxo-Fibroma.	Sarcoma.
Origin	1. Roof and walls of naso-pharynx. 2. Posterior margin of septum (rare).	Vault of pharynx.	1. Basilar process of occiput. 2. Body of sphenoid.	1. Upper part of posterior nares. 2. Septum (rare). 3. Inferior turbinated bone (rare). Pigeon's to hen's egg.	Basilar process of occiput.
Size.....	Shot to pea, or larger.	.....	Small.	.....	Large.
Surface	Mamillated, soft, velvety, readily bleeding.	.....	Smooth, irregularly rounded, hard, often ulcerated, with prominent blood-vessels, covered with sanious secretion, readily bleeding, with prolongations.	Soft, smooth, ovoid, movable.	Rounded, somewhat lobulated, soft, pulsatious, with prolongations into nasal cavity.
Color	Pale, pinkish.	.....	Purple, dark red, to light pink.	Dark red, reddish gray, muddy, opaque.	Grayish yellow, muddy, or pinkish.
Attachment. Discharge.....	Pedunculated. Mucous or mucopurulent, copious, thick, tenacious, occasionally blood-streaked.	.....	Pedunculated. Mucopurulent or purulent, abundant, thick, tenacious, occasionally blood-stained.	Pedunculated. Mucopurulent.	Pedunculated. Sero-mucous, thin, watery, ichorous.
Odor.....	None.	.....	Occasional fetor.	None.	Very fetid.
Deformity....	Of chest and upper jaw.	.....	"Frog-face."	None.	None.
Rate of Growth...	Slow.	Slow.	Slow.	Rapid.	Rapid.
Age.....	4th-15th year.	Congenital.	Puberty.	15th-30th year.	Early adult life.
Sex.....	.....	.....	Male.	Female.	Male.
Prognosis	Good.	Good.	Doubtful.	Good.	Grave.
Frequency ...	Common.	Rare.	Rare.	Very rare.	Rare.

(To be continued.)

Clinical Memoranda.

ARTIFICIAL ANUS ESTABLISHED SPONTANEOUSLY THROUGH THE UMBILICUS.

BY B. K. RACHFORD, M.D.,

Clinician to Children's Clinic, Medical College of Ohio, Cincinnati, Ohio.

JANUARY 23, 1891.—I was called to see L. B., and obtained the following history : He is nine years old, and has been sick and under constant medical observation and treatment since last July. During this time he has passed through the hands of a number of physicians, none of whom have been able to check the progress of his disease. From the mother's story it is plain that during this time the boy has been suffering, as he is at the present time, from peritoneal and pulmonary tuberculosis. During the past few months he has been much worse, having more cough, more fever, less appetite, and has been confined almost continually to his bed and reclining-chair. At this, my first visit, I found a most pronounced *tabes mesenterica*. The abdomen was very large, tumid, and covered with a net-work of dilated veins; this tumefaction was quite symmetrical, and there was some pain on pressure in the right iliac region. The arms, legs, and chest were greatly emaciated and the face was thin and had a pinched, anxious, old expression. The boy had fever, night sweats, a bad cough, and expectorated considerable characteristic tubercular sputum. Physical examination showed tubercular disease in both lungs. He had little appetite, took little nourishment, and was losing rapidly in flesh and strength. A fatal prognosis was made, and the treatment was directed towards making the boy as comfortable as possible, and supporting him with milk and whiskey.

From this time on till the 13th of February, a period of twenty-one days, the cough, fever, and night sweats continued, and the patient gradually lost strength. His bowels moved almost every day and the stools were rather free and not very consistent. At no time was there any pronounced diarrhoea. The stools were not putrid and contained no mucus or blood. What little appetite the boy had gradually left him; his nour-

ishment did not exceed half a glass of milk and a tablespoonful of whiskey in twenty-four hours.

At this time, February 13, it seemed that he could not live more than two or three days. On the 11th and 12th of February the abdominal tenderness was more marked and the umbilicus was red, tender, and slightly more protruded.

On February 13 the father came in great haste to my office and said that the boy's "belly had bursted" and that "the stool was coming through the navel." I went with the father, and explained to him on the way how the umbilical opening might drain the peritoneal cavity of the pus and other products of inflammation that had accumulated there, and how such an accident as this, if it did occur, would very much improve the boy's condition. But on reaching the house I took a very different view of the case. There was no mistaking the fact that a large quantity of well-digested fecal matter had passed through the umbilicus, and on gentle pressure over the abdomen not only fecal matter but gas escaped through the opening. I now thought, and so explained to the father, that the bowel had ruptured and that the escaped fecal matter had in some manner been pocketed and directed towards the umbilicus, where it found escape, and that this condition of affairs would bring about a rapidly fatal termination to the case. While this explanation and prognosis was given to the father, I was far from being satisfied with it myself, since the boy's temperature was above normal; he was free from pain and said he felt much better since the opening occurred. The above explanation failing to explain these symptoms, and comprehending as it did the strange coincidence of the almost simultaneous opening of the bowel and umbilicus, was far from satisfactory.

February 13, 6 P.M., eight hours after the perforation.—This has been the most comfortable day the boy has had for several months. Temperature 101° ; has no pain and is bright and cheerful. There has been a slight discharge of fecal matter and offensive gas through the opening. He has taken more than a glass of milk to-day, and says he is much better.

It now seemed clear that some portion of the large intestine had been fastened by inflammatory action to the anterior abdominal wall at a point corresponding to the umbilicus, and that a tubercular ulcer had perforated the bowel at this point and opened the umbilicus, thus establishing an artificial anus. That this artificial anus communicated with the large bowel was made probable by the fact that the fecal matter that passed through it was perfectly digested and very like that which had been passing by the rectum.

February 14.—During the night the patient expressed the desire to go to stool, and was placed on the chair. The straining produced a copious passage of fæcal matter through the umbilical opening, but none by the rectum. This fæcal discharge consisted of well-digested matter, resembling in color and consistency that which had previously passed by the rectum. It was semifluid in character, and contained pieces of solid matter the size of a small hickory-nut. He slept well and did not sweat as much as usual. His temperature this morning is 99°, and he has an appetite for the first time in several months. His mother had given him a cup of coffee and a cheese sandwich for breakfast, which he relished very much and wanted more.

February 15.—There has been some discharge of fæcal matter through the umbilicus. This discharge through the artificial anus is produced by straining in much the same manner that fæcal matter is expelled through the normal passages. When the boy wishes to go to stool the umbilical bandage is taken off, and the passage is accomplished by straining as in the ordinary way. In the interval between the times of going to stool, this umbilical bandage becomes slightly stained with fluid that escapes through the opening. Barring this slight discharge, the sphincter-like action of the umbilicus makes of it a good artificial anus, retaining the fæcal matter until pressure from within, which is increased by straining, produces a relaxation which allows the fæcal matter to escape.

The boy now had a good appetite, and his indulgent mother could not be induced to deny him anything he insisted on having. He had been sick so long and was so fretful and peevish that the mother insisted she could not control him in the matter of diet. He drank beer and eat cheese, meat, sausage, and in fact pretty much anything that had been prepared for the other members of the family, and, strange to say, he did not apparently suffer from this indiscriminate feeding.

During the next few days the patient remained comfortable. The temperature varied from 99° to 102° F., but the umbilical opening was becoming somewhat red and tender, and the fæcal discharge through it was less copious than before.

February 17.—Following an enema the patient had a very copious stool per rectum, the first in five days.

From this time on till the 10th of March the boy remained in very much the same condition, his appetite was fairly good and he was comparatively comfortable, notwithstanding the fact that his cough, expectoration, night sweats, and fever continued. Every second or third day he would have a copious

faecal discharge by the rectum, but the discharge through the umbilicus became less and less copious and the opening more and more inflamed, till I began to think that the umbilical opening would be closed entirely by the inflammation.

At times, during the latter part of February, the boy would, on being placed on the chair, have a simultaneous discharge of faecal matter from the umbilicus and the anus. At other times it would be exclusively through one or the other of these openings, so that the boy himself did not know beforehand what to expect.

During the progress of this most interesting case quite a number of my medical friends saw the case with me, among them Dr. P. S. Conner, of Cincinnati, who advised against any surgical interference.

March 10, 9 P.M.—The patient asked to be placed on the chamber, and, after considerable straining, had a very copious stool per rectum, but very little passed through the umbilical opening. While yet on the chamber, he complained of faintness and pain in the abdomen, he sank back in bed exhausted, slowly passed into a state of collapse, and died the next morning at seven o'clock.

The next day Dr. R. B. Carothers assisted me in making the autopsy. The father of the boy being present, the abdomen only was opened.

The intestines, bound together and covered by fibrous and tubercular material, formed a large, hard, and rather symmetrical tumor, which was covered with soft, yellow, well-digested faecal matter. An opening was found in the large intestines, but, owing to the agglutination of the intestines and the heavy deposit of inflammatory products covering them, it was difficult to locate the opening, but, as well as could be judged, it was in the transverse colon. This opening was round, had thickened edges, and was about the size of a silver dime. On the outside of the gut around the opening there was a red, raw circle about one-half inch in width, where the gut had been attached to the abdominal wall at the umbilical opening. Around the umbilicus there was also a raw surface marking the point, where the gut had been attached. It is more than probable that the gut was torn loose from its umbilical attachment while the boy was at stool on the evening of March the 10th. This allowed the faecal matter to escape into the abdominal cavity, and explains the faintness, pain, and collapse that followed.

Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

Treatment of Whooping-Cough—Convalescence of Scarlatina—"Turning-Boxes"—Raising Children in Bran—Treatment of Photophobia in Children—Onanism Habit in Child cured by Hypnotic Suggestion—The Potato Cure—Infantile Mortality in Russia—List of some New Theses just passed at Paris Faculty of Medicine, July, 1891, relating to Children's Diseases.

The treatment of whooping-cough.—There is nothing very new in this difficult matter, but in its present state we give a hasty *résumé* of what is being done about it in Europe. Dr. Netter, in 1886, brought up the treatment by—

1. *Scilla oxymel*.—Which, since then, has been constantly used in children's hospitals in France as well as in private practice. The results may be briefly stated to be that it certainly diminishes the number of attacks of the cough and makes them shorter in duration. The expectoration is made more abundant and more fluid, while vomiting is soon stopped, so that it is claimed to be the *best known treatment*. It is given in twenty- to sixty-drop doses to babies. In older children five to six teaspoonfuls is given between five and six o'clock P.M., and no food is given from three to seven P.M. This is another return to an old medicine, oxymel scillæ having often been used in old times as a good expectorant in bronchitis, etc.

2. *Quinine*.—Binz used to advise quinine years ago in whooping-cough. Now Dr. Megar, of Bonn, takes it up. He gives large doses.

3. *Antipyrin*.—This is the English idea. Dr. Crozier Griffiths believes, like Megar does of the quinine, that antipyrin only fails when not given in large doses, and finds that children stand them well. A baby of four months was given one-half grain every three hours, and on the fourth day, there being no improvement, he gave one grain every three hours, and in forty-eight hours the child was well.

4. *Infusion of thyme*.—Common thyme seems also to be an efficacious remedy for whooping-cough. It is given in infusion (twenty grammes of thyme to one hundred and fifty grammes of boiling water). This is sweetened with syrup

of tolu, and six to ten tablespoonfuls are given daily, according to age of child.

5. *Essence of eucalyptus comp.*—This is a mixture of six grammes of essence of eucalyptus and an equal quantity of essence of turpentine in forty-five grammes of alcohol, and is used by *inhalation* half an hour before each meal and at night. It is claimed to have cured whooping-cough.

6. *Chloral.*—This is used only in cases where there is no bronchial troubles and but little expectoration.

On the convalescence of scarlatina.—Dr. Chenet* says that he finds—as many will who inquire—the widest kind of difference about this matter; some doctors are in favor of keeping such cases in bed as long as possible, three weeks often, and six weeks in the house is a common rule; but the author finds it better to begin early with rubbing the body with fatty substances, and as soon as desquamation commences to give baths; then as soon as the skin-peeling is over to let them go out. The modern idea is that albuminuria is an infectious phenomenon, which can be prevented by re-establishing as quickly as possible the function of the skin. The fear of catching cold is correct in principle in these cases; but is confinement the best way to prevent this? Many think not. "The child that is left alone for a single instant may throw off its coverings, or its bed may be placed near a door, in the draught. If it is up it may play about near the windows, and in all these cases catch cold, which may bring on nephritis; would it not be better to hasten the return of the skin function and get these cases out quicker? The author gives cases in which he commenced on the eighth day to use friction with *borated* vaseline, and commenced baths in third week. Three grains of calomel were given daily all through the case and milk was used as food. About contagion: the author inclines to the opinion that it is most dangerous during the peeling of the skin, and that the antiseptic ointment he uses helps to prevent the persons around the patient taking the malady. An antiseptic mouth-wash and throat-gargle is also necessary. The giving of baths as soon as possible, then, is indicated, and they may or should be antiseptic. Isolation, the author thinks, is useful, but not sure at all, as cases of contagion from patients three months after convalescence are given, and surely they cannot be kept isolated so long.

The "turning-boxes."—It will be remembered by most of those interested in infants that at one time there existed in the walls of the Paris *Maternité* turning-boxes in which mothers

* Revue Générale de Clinique, Paris, 1891.

could place their babies, in secret, and leave them to public charity. A bell rang when the child was put into the box, and the attendants took it into the hospital without asking any questions. The late discussions on the palpable falling off in population in France has brought up the question of the re-establishment of these turning-boxes as a good measure. They were first established in the Middle Ages as a Christian measure to prevent the practice then of mothers selling their children for a few pennies to beggars who used them to excite compassion. The great expense to the state that resulted caused a decree in 1793, and it was then permitted that illegitimate mothers could go into the hospital for confinement, and their offsprings were taken care of. This was changed again in 1810, when all the hospitals were allowed to have "*tours*" or turning-boxes. Again, in 1830 to 1841, they were suppressed, and at present the authorities are asking if it would not be well to re-establish them? The deposit of the child which a mother cannot support must be made now in an open office, and is surrounded by some formalities that, it is feared, only tends to increase the number of crimes committed and helps to cause the diminution of population. Poverty and the desire to hide a fault is mostly the reason why these mothers abandon their children, and it is said that we would simply be encouraging vice to have the "*tours*" again; but is it not better that the fallen woman should be helped in this way than to keep her in prison for abortion or infanticide? besides, a life is saved and a citizen gained. Another measure proposed is to create homes, where any woman may come and be confined with the privilege of having her child raised by the state, and also that she need not say who she is nor who the father of the child is unless she wishes to. Professor Le Fort, and many with him, thinks that to prevent abortion and infanticide we must come to three institutions,—1st, the turning-boxes; 2d, maternities, where women may come and be confined without declaring who they are; 3d, offices that receive children to be brought up by the state when the parents cannot support them. It is, certainly, a false principle to punish innocent children with death on account of the faults of the parents, and it is certainly impossible to prevent by laws the approach of the sexes caused by the natural animal instinct, which does not even fear disease, or death for that matter, and never will fear the law enough to prevent conception. It is also not likely that maternal love will be any the less active by having the "*tours*," nor will the poor young couples who marry on nothing be encouraged to abandon their legitimate offspring whom they love quite as much as the rich do. As to the question of state economy, it is proved that

more is paid out by governments to keep abortionists and infanticides in prison than would keep all the natural children.

Raising children in bran.—This method was proposed by M. Hue at the *Société Normande d'Hygiène Pratique*. It consists of a cradle which has the wooden bottom taken out, and it is then lined with a strong cloth. In this is placed sterilized bran to nearly half a yard in depth. A hair pillow is used. The baby has only a short flannel shirt on and is naked from the navel downward. It is covered with a woollen blanket, and a wool-lined dress is kept to put it in when taken up for nursing. It has thus full liberty of movement in all its limbs, while its dejections pass at once into the pure bran, keeping it dry and clean, no matter if there is a diarrhoea or not. This method is a cheap one, the bran not costing as much as diapers.

Treatment of photophobia in children.—Dr. Gutteriez Ponce, a South American gentleman, practising in Paris, has an eye clinic, and presents from time to time some original and interesting cases; one lately was a boy of thirteen that had a panniform keratitis in both eyes, and every time the lids were opened he was taken with a violent sneezing attack. A small pellet of cotton was then used with a few drops of chloroform on it and placed in the external auditory canal, when in a few moments the eyelids could be open and the photophobia diminished rapidly.

The doctor explains the effects of this local medication by saying that there is produced an anæsthesia of the Gasserian ganglion, which he believes to be the centre from which the reflex action giving rise to sneezing departs after the expression of light was made on the retina by the light on opening the boy's eyelids.

Onanism habit in child cured by hypnotic suggestion.—Professor Bernheim of the Nancy School gives this case. A boy of eight had been found to have the habit of masturbation for seven months back, only one month, however, with emissions. All sorts of treatment was tried without effect. Bromides of potassium and camphor baths, beating, etc., were of no avail, when Dr. Bernheim hypnotized him, and suggested to him that he must not only not touch but not think of such a thing. This was continued from April 9 to 16 daily, then for a short time every other day. From the first the child says he had no longer any temptation to do wrong. He rapidly gained in weight, running up from forty-four and a half pounds to forty-seven and a fourth, so that a single hypnotic suggestion was enough to cure and neutralize, as it were, the idea which had taken possession of him even in sleep. From such

successful cases we must conclude that hypnotism applied for a therapeutic purpose can sometimes at least weaken the erotic hold on patients and render their weak will strong enough to overcome bad habits.

The potato cure.—M. Duong relates in *Poitou Médical* the following cases, where children who had swallowed foreign bodies were treated with large quantities of mashed potatoes:

"The first case was a boy of fourteen, who was eating mussels, or rather a small shell-fish (*Helix maritime*), and opening the shells with a hair-pin, which last he swallowed. Great quantities of potatoes were given, and after very copious stools the next day the pin was found in them.

"The second case was a boy of eleven, who swallowed a brass coat-button, which was followed in its descent by the pain produced on pressure of the abdomen, and it was passed on the third day.

"A third case was a child of two and a half years of age, who was suspected of swallowing a marble. It was fed a thick potato-soup, which produced large stools, but the marble was not found."

In any case, as this treatment can do no harm, it might be advised when the children or even adults swallow any foreign body.

Infantile mortality in Russia.—In 1,400,000 male children born in 1855, there were only 610,000 alive in 1876. This was found out when the drawing took place for the forced army service of twenty-one-year-old men. The average was forty-three per one hundred. In 1,512,202 males born in 1861, 777,769, or fifty-one per cent., were found living in 1882, the date of conscription. In 382,109 men called out in 1884, 71,697, or nineteen per cent., were found incapable of military service. In thirty-two and nine-tenths of these cases the cause was some affection of the bones, articulations, and muscles.

We give a short list of some new theses just passed at the Paris Faculty of Medicine, July, 1891, relating to children's diseases, which are *printed*, and can be had through medical publishers. They present the subjects up to date, and are original as well as interesting.

Étude sur l'Érysipèle (Study of Erysipelas of New-Born Infants). By M. Deleas.

Traitement par l'Antipyrine de l'Incontinence chez les Enfants. By M. Gaudes.

Prognostic dans quelques Varitées de Néphrites chez les Enfants. By M. Dulski.

Diagnostic de Forme Meningée de Dothienterie Infantile (Diagnosis of Meningeal Form of Infantile Typhoid Fever). By M. Georgevitch.

Les Dispensaires des Enfants Malades (Dispensaries for Sick Children). By M. Jaeger.

Contribution à l'Étude des Anomalies de Voute Palatine (Study of Anomalies of Palate and its Significance to Degeneration). By M. Charon.

Contribution à l'Étude des Cirrhoses Hépatiques chez les Enfants (Contribution to Study of Hepatic Cirrhosis in Children). By M. Porembski.

De la Prédisposition Morbide dans l'Enfance. By M. Gaubert.

Contribution à l'Étude du Rachitisme et Traitement Maritime (Contribution to the Study of Rickets and its Sea-Side Treatment), passed in June, 1891. By M. Cartier.

Étude sur Pied-bot Congénital à Manifestations Tardives (Study of Club-Foot, Congenital Form, but with Later Slowing of its Effects), passed in May, 1891. By M. Boudron.

Considérations sur l'Allaitement (Considerations on Nursing, with Milk). By M. Pineau.

Des Rapports du Poids du Fœtus avec le Poids du Placenta (The Relation between the Weight of the Fœtus and Placenta). By M. Zentler.

The last two were passed in May, 1891, Paris.

New Books.—Professor Lannelongue, of the Paris faculty, is a surgeon to the children's wards in Trousseau Hospital, and has for many years studied the diseases arising from the embryonic formation of the head, face, and neck. (Dr. Lannelongue is at present much spoken of as the author of the last new treatment of tuberculosis with chloride of zinc. Harelip, rickets, and all the congenital surgical diseases are fully treated in his new book,—“Affections Congénitales. Tête et Cou, par MM. Lannelongue et Menard,” Paris, 1891 (Asselin et Houzeau, publishers).

“Études de Clinique Infantile,” par Dr. Sevestre (Hospice des Enfants-Assistés), Paris, 1891, Lecrosnier & Badé, publishers. This book of one hundred and fifty-five pages contains the clinics given by Dr. Sevestre on children's diseases (diphtheria, scarlatina, measles, etc.), giving the latest modern ideas and works on these subjects.

The Paris city authorities, on the demand of Professor Straus, have ordered the construction of a frame building in the grounds of the Maternity Hospital, to contain twenty couveuses or hatching-cradles for children weak from birth, born before term, or those who are in a state of athrepsia needing the high-temperature cradles.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Hunt, Wm.: A New Method of dressing the Chest in Pneumonia, Pleurisy, Pleurodynia, etc. (*Annals Gynæ. and Pæd.*, 1891, iv. 313.)

Apply a very thin layer of absorbent cotton over the side affected from spinal column to sternum, and secure it with collodion smeared thoroughly over it. Then go on with thicker layers, securing them with collodion until a good padding is obtained, paying particular attention to the edges. The advantages are: 1. The one dressing, if well applied, will last throughout the case, and so—2. The fatigue and discomfort of frequent poulticing are avoided. 3. The side, in single cases, is held as in a splint, while the free side does the breathing. A first-class non-conductor is covering the chest. I am not sure but that the contracting collodion may have some influence in controlling the blood-supply. 4. There is no particular interference, in one who has a good ear, with physical examination.

Parker, C. T.: Death during Chloroform Administration. (*Journ. Amer. Med. Assoc.*, 1891, xvi. 232.)

These cases of deaths under anæsthetics are always unexpected and, in the majority of cases, unavoidable. This patient was a bright, perfectly healthy little girl, about eleven years of age. She had on her face a large mole covering the greater portion of the surface of the cheek. It was a source of great annoyance to the child, increasing her timidity, and of great trouble to the friends. We recommended its removal, and chose chloroform as the anæsthetic.

The anæsthetic was commenced in the room which the parents of the child occupied. At first the child exhibited no more excitement and no more opposition to taking the chloroform than do other patients, and not nearly as much as many. It is often needful to use physical force for some time before the patient is anæsthetized; that was not so in this case. The child was brought into the operating-room quietly asleep. The anæsthetic was then given into the hands of the oldest *interne* and he administered it carefully during the operation. The

operation required about twenty-five minutes; it was about the face, and my hands, which are not very small, were over the child's face all the time, and consequently the anæsthetic was not used steadily; very little chloroform was given to the child. The instrument used for giving the anæsthetic was Esmarch's inhaler, a wire frame covered with flannel, with which it is impossible to absolutely prevent the entrance of air. The operation was practically over, when, without any warning, without the administration of any chloroform for at least five minutes, the child was seized with general convulsions; she ceased to breathe, her heart ceased to beat, she gave a few gasps and was dead. Every effort was made for an hour and a half to restore circulation and respiration by artificial respiration, injection of ether and whiskey and nitrite of amyl and the use of electricity, but all efforts failed.

Conkey, C. D.: Preventable Blindness in the Young. (*N. W. Lancet*, St. Paul, 1891, xi. 120.)

He concludes, 1. That the largest proportion of blindness in the young can be prevented. 2. That the majority of cases of blindness develop in the practice of the general practitioner, in the course of the invasion of the grave diseases of childhood, or as a sequence to these, or as a result of a contagious leucorrhœa in the mother. 3. That to successfully prevent them, prophylactic measures should be adopted in all cases where danger is suspected, or where the eye shows a tendency towards inflammatory action. 4. That the physician should be sufficiently acquainted with eye-diseases to treat them skilfully when the eye becomes invaded. 5. After all severe attacks of the diseases of childhood the patient's sight should be carefully tested before he is dismissed as convalescent. If these precautions were carefully observed, the percentage of blindness would be greatly reduced among the young, and to the many thousand children that yearly become blind would be preserved this most precious of all the senses.

Beyer, H.: Methyl-Blue in Diphtheria. (*Phila. Med. News*, lviii. 283.)

Fifty cases of well-marked infantile pharyngeal diphtheritis have been successfully treated by me during the last six months by the local application of a mixture of chemically pure methyl-blue and powdered sugar, two parts of the former to ninety-eight of the latter, controlling the fever by small doses of acetanilide and sustaining the vital forces with extract of beef, eggs, and milk. The methyl-blue is entirely tasteless and free from all deleterious effects. It is applied as follows: The patient's

head is held in a horizontal position, the tongue depressed, and from five to ten grains of the powder are freely applied to the pharynx. This is repeated every two hours, or as often as new crops of exudation make their appearance. Sudden elevation of the head must be prevented, the mouth kept closed to prevent spitting, and no drink or food given for ten or fifteen minutes before and after the application.

Retronasal and laryngeal diphtheritis has in none of the fifty cases above referred to made its appearance. Where the nose or larynx was involved at the beginning I could not claim such good results, owing to the already enfeebled condition and the great difficulty of applying the remedy; still, I have done better with it than with any other remedy. Washing the retronasal and nasal space with boiled water and applying the powder with the Devilbiss blower have given me the most satisfaction.

Eliott, Llewellyn: *The Prophylaxis of Diphtheria.* (*Va. Med. Month.*, 1891, xvii. 892.)

He considers the different methods of prophylaxis, and advocates, as the best plan, the constant vaporization of turpentine in the house where diphtheria is present. Of the fifteen cases which the writer reports, in several families new cases developed where no turpentine was used, but in no family did a new case develop where the rooms were kept filled with the vapor of turpentine.

A similar result was obtained at the New York Infant Asylum, where the following formula was used:

R Ac. carbolic, $\bar{\text{z}}$ i.;
 Ol. eucalypti, $\bar{\text{z}}$ i.;
 Spt. terebinth., $\bar{\text{z}}$ viii. M.

Add two tablespoonfuls to one quart of water in a pan with a broad surface, and maintain in a constant state of ebullition or simmering in the room occupied by the patient.

Fackler, G. A.: *Toxic Effects of Chlorate of Potassium.* (*Cincinnati Lancet-Clinic*, 1891, xxvi. 658.)

The patient was a boy fifteen years of age. He had resorted to chlorate of potassium for a sore throat, and had taken one hundred and fifty grains in a period of six hours. The most striking feature was a slight bluish discoloration of the skin, especially marked about the lips, nose, ears, and extremities. Slight jaundiced appearance of the conjunctiva. Respiration superficial and somewhat accelerated. Examination of lungs and heart negative. Tongue coated. Mucous membrane of

the mouth slightly hyperæmic. Tonsils swollen and reddened with clean surface. Abdominal walls not distended but painful on pressure. Spleen apparently slightly enlarged, but impossible to definitely determine on account of great pain on palpation. Liver decidedly enlarged.

During the examination the patient began to vomit. Excruciating pain in the lumbar region followed, and the patient lay moaning, retching, vomiting, and, with the peculiarly discolored skin, presented a rather harrowing picture. Urine was voided with marked strangury and sparingly and upon examination was of a peculiarly yellowish-red color and found to contain albumen.

Sulphate of magnesia was immediately administered in order to secure a removal of any portion of the drug still present in the alimentary tract. The patient was seen four hours subsequently. Had had profuse alvine discharges. Slight dyspnœa present, and a number of yellowish-brown maculæ upon the side of the abdomen, the back, and anterior portion of the neck. Acetate of potassium with tincture of strophanthus was ordered. Symptoms gradually improved, and within five days had entirely disappeared, with the exception of slight pain in the epigastrium.

The best therapy for the future is probably prevention,—i.e., to banish the remedy from our list of medicines. Although it must be granted that in cases of throat affections and cystitis occasionally good results are witnessed, still we must remember that these results are wanting in a disproportionately larger number of cases. On the other hand, we have at our disposal a large number of substances which in their therapeutic value are not inferior to KClO_3 , and do not possess much toxic properties. Especially is it advisable never to employ it as a medicine for children.

Felkin: Nine Cases of Accidental Vaccination. (*Edinburgh Medical Journal*, July, 1891.)

These cases are of interest in showing the possibility of such an accident and the modes in which it may occur. The first patient was a woman, the sore being on the left labium, having been vaccinated from a child by means of the index finger. The second was vaccinated accidentally at the outer angle of the left eye, which was subsequently lost. The third was upon the left cheek. It was caused by a scratch by a child who had recently been vaccinated. The fourth sore was upon the breast of a mother who was nursing a child recently vaccinated. Another occurred in a sore which had been dressed with vaseline taken from a dish which had been used

in dressing vaccine vesicles. The sixth was upon the lip of a man who had been scratched by a child with a vaccination sore upon the arm. The seventh was at the angle of the mouth and was caused in a similar manner. The eighth patient was vaccinated in almost an identical manner. The ninth was vaccinated at the outer angle of the right eye.

Davis, T. G.: *The Treatment of Convulsions in Children.* (*Phila. Med. News*, 1891, lviii. 217.)

In a case of convulsions in a child, if the patient is cyanotic, a few whiffs of amyl nitrite, followed by inhalations of chloroform to relax spasm, should be given. These should be followed as soon as possible by hypodermic injection of tincture of veratrum viride, one-half drop for each year of age up to six years. The veratrum may be repeated in a half-hour or an hour if the convulsions recur. If the convulsions are uræmic, a small dose of morphine may be added or given separately. Appropriate after-treatment, as may be indicated, should of course be adopted.

Ballantyne: *Relations of the Abdominal Viscera in the Infant.* (*Edinburgh Medical Journal*, July, 1891.)

These observations are founded upon the examination of seven full-time infants by the frozen sectional method, and are additional to the extensive work already done by the author upon the pelvic viscera of the infant. Elaborate illustrations add materially to the understanding of the text. The following are the most important points. The liver, instead of being flattened, as it appears when removed from the body, is thicker, and has five distinct surfaces,—a superior, an anterior, a right, a posterior, and a left inferior. The liver of the infant is darker in color than that of the adult, and relatively very large, being in proportion to the general body-weight, one to eighteen. The explanation of most of the peculiarities in the anatomical relations of the abdominal viscera of the infant is to be found in the large size of the liver.

The stomach is relatively small, and lies well to the left of the median line. The fundus is relatively somewhat smaller than in the adult, but there is not sufficient peculiarity in shape to account for the ease with which the infant vomits. In the author's opinion, this is due chiefly to the fact that the stomach is surrounded on all sides by hard, resisting organs.

The small intestine shows nothing especially peculiar. It varies in length considerably in different individuals, but averages a little more than nine feet at birth, and is said to grow four feet during the first two months.

The cæcum and ascending colon were found in various positions and no definite statement as to their location can be made. The transverse colon is often crowded out of place by the liver, and forms a projection into the left iliac region. The descending colon occupies a position similar to that in the adult.

The sigmoid flexure in the infant is large and long. It usually extends across the pelvic cavity well to the right of the median line and passes down behind the bladder.

The spleen in the infant is of dark color and soft consistency. It lies in contact with the liver, the stomach, the diaphragm, and the suprarenal bodies. The suprarenal capsules are relatively large in the infant. The relation of the kidneys to surrounding organs are practically the same as in the adult. The pancreas shows nothing peculiar. The bladder is entirely an abdominal organ at birth.

Rias: The Treatment of Habitual Constipation in Children. (*Practitioner*, May and June, 1891.)

The author enters a strong plea for dietetics in the management of this troublesome disorder as opposed to drugs. No definite rule as to what article of diet shall be given can be made to apply to every case. What will suit one may not suit another. The child should not be forced to eat what he does not relish, no matter how suitable it may be theoretically. The dietetic treatment may be summed up as the provision of diet intermediate in composition between milk on the one hand, and bread and meat on the other, and, according to the progress of the child's development, proportionally rich in albuminoids, fat, and sugar, and poor in starches. All temptations to economy should be resisted.

Stimulants the author regards as agents of importance, among which he classifies country air and alcohol, preferring a little good wine to medicine.

The temporary use of drugs is sometimes demanded, and of these there are none better than the old and tried remedies, as rhubarb, aloes, iron and myrrh, cinchona, and the various bitters. The simple bitters are harmless and usually prove laxative because they are intestinal tonics.

Schmidt-Rimpler: Treatment of Blennorrhœa in the New-Born. (*Journ. de Méd.*, April 12, 1891.)

The author believes that ocular blennorrhœa in the new-born is not always due to the gonococcus. Very often the microbe cannot be found either in the vaginal secretion of the mother or in that from the eyes of the children.

Ophthalmia neonatorum of microbial origin is not always a severe disease, and, on the other hand, ophthalmia not due to the microbe may be of serious import.

Blennorrhœa in young children is not followed by severe ocular lesions as often as it is in adults, and will usually yield to systematic treatment.

The author proposes that one should not be satisfied with simple washing of the eyes of the new-born with water when there is a discharge from the genitals of the mother, even though it is not blennorrhagic in character.

As a prophylactic measure he recommends instillation of the officinal solution of chlorine, which should be kept in a dark place, tightly stoppered. If the blennorrhœa is of a severe character, the lids swollen, and the secretion not abundant, instead of using nitrate of silver, it is recommended that the chlorine solution be instilled twice daily, and compresses applied dipped in a two-per-cent. solution of boric acid. If the secretion is abundant and purulent, then the nitrate of silver solution, neutralized with saline water, should be used. Cases which are thus treated will promptly improve, and there will be no corneal injuries.

A. F. C.

De Lapersonne : Treatment of Purulent Ophthalmia in the New-Born. (*Journ. de Méd.*, April 19, 1891.)

1. Antiseptic vaginal injections should be used by the mother prior to delivery, if the existence of an abundant vaginal discharge promises mischief for the child.

2. With all children, immediately after birth, before the bath, the eyelids should be cleansed with an antiseptic solution, with the aid of a clean soft piece of linen, or a pledget of absorbent cotton. Either a one-per-cent. solution of carbolic acid may be used, or equal parts of boiled water and Van Swieten's solution, or the following combination :

R. Hydrarg. bichlor., .10 gramme;
Acidi tartarici, .20 gramme;
Aque destil., 200 grammes.

As soon as the eyelids are opened one should instil into each eye, with a medicine-dropper, one drop of a solution containing twenty centigrammes of nitrate of silver, and ten grammes of distilled water. This solution and the foregoing one should be kept in bottles, and may be given to midwives for routine use.

3. If in spite of all precautions the eyelids swell and begin to have a purulent secretion, the midwife should at once call a physician, who should make the necessary cauterization.

4. If purulent ophthalmia actually exists, all pieces of linen or cotton which are used to dress the eyes should be scrupulously destroyed. The hands should be thoroughly washed with soap and water, and should also be dipped in a one to forty per cent. solution of carbolic acid, or a sufficient quantity of pure Van Swieten's solution. The author thinks that midwives can avoid doing harm only as they carry out these precautions, and he does not think they should be excused from responsibility unless they have actually taken such precautions.

A. F. C.

Epstein: The Use of Koch's Method of Injections in Infants and Young Children. (*Prag. Med. Wochen.*, Nos. 1 and 2, 1891.)

Five cases are narrated in which this treatment was tried, all being tuberculous or exciting suspicion of tuberculosis. In three of them there was a diffuse painful infiltration which occurred regularly in the vicinity of the point at which the injection was made, as large as a quarter of a dollar, and an oedematous swelling of the surrounding portions which disappeared after six or eight days. There was never suppuration. The infiltration differed from those which are commonly seen after the injection of other medicaments, the skin being first pale red, then brown, the epidermis remaining as a brownish scab or falling off in scales. It appears probable that these phenomena may be regarded as the reaction of the skin of certain tuberculous children to this substance (tuberculin). The author has not seen such an infiltration in healthy persons.

With regard to the phenomena of the general reaction, it was observed in most cases that the temperature did not begin to rise until five or six hours after the injection had been made, though there were cases in which it began to rise as soon as two hours and as late as sixteen hours after such injection. The duration of the febrile reaction appeared to be rather longer in children than in adults. In one case it continued to the fourth day. The excursions of the temperature-curve were in most cases regular and abrupt; in some cases there was a daily *double* curve, the normal temperature being reached in the intervals, or there were remissions lasting several days, the fever then recurring. The general condition of the children during the febrile reaction was usually disturbed by restless sleep and lassitude, especially in cases in which there was cough. Notwithstanding the fact that the fever frequently rose to 40° C., there was no serious disturbance of the sensorium or symptoms of nervous irritation such as are frequently observed in older persons in connection with high

fever. After the fever disappeared the children quickly resumed their normal activity. The pulse was rapid during the febrile period, but was usually strong. No albumen was found in the urine. The quantity injected was usually one-tenth milligramme for children under three years of age, the temperature was taken every four hours, and the injections were gradually increased five-hundredths of a milligramme at a time. Inasmuch as febrile reaction sometimes continued several days after an injection had been made, it was found desirable to wait until the temperature remained steadily at the normal point before repeating the injection. By observing this precaution it was possible to avoid cumulative effects. In cases of chronic tuberculosis it was concluded that the intervals between injections should be at least four or five days. It was also found advisable not to increase the dosage as long as a febrile reaction followed the injection of the initial quantity. As soon as this dose was not followed by reaction it was believed that the dose could be safely increased. In cases of chronic afebrile tuberculosis involving the bones, glands, lungs, etc., one can regulate the febrile reaction and avoid a temperature exceeding 39° C.

The diagnostic value of tuberculin was shown in a very convincing manner in the author's cases. At no period of life is this feature of the substance of greater value than in childhood when the tuberculous infection makes its first inroads. As to the curative effect of the treatment a positive statement cannot be made, especially since the number of cases in which it was tried was so small. The time in which it was tried was also too short for any definite conclusions. It is the author's conviction that scientific and practical medicine has received in Koch's discovery a valuable agent and one which will be effective of far-reaching results.

A. F. C.

Gumplowicz: *Casuistic and Historical Data concerning Rötheln.* (*Jahrb. f. Kinderh.*, xxxii. 3.)

The points of distinction which were determined by the author's study of this disease from ordinary measles were as follows:

1. The prodromal stage was short or was altogether absent.
2. The exanthema had a more rosy appearance. It showed a characteristic net-work formation upon the body and extremities, while upon the face the eyelids, the lips, and the nose were frequently uninvolved.
3. The appearance, efflorescence, and disappearance of the eruption took place at different times on the different portions of the body.

4. The fading away of individual spots began at the centre and proceeded to the periphery.

5. Fever was absent or was slight and of short duration.

6. The mucous-membrane phenomena were either very slight or entirely wanting. Conjunctivitis and sneezing never occurred in the way in which they occur in measles.

7. There was no desquamation.

8. And there were no sequelæ.

For the historical data the original article may be consulted.

A. F. C.

Mery and Pierre Bouloche: Bacteriological Researches upon the Saliva of Children suffering from Measles. (*Rev. Mens. des Mal. de l'Enf.*, April, 1890.)

1. The authors' investigations lead them to conclude that the pneumococcus and the streptococcus are to be found in the saliva of children suffering with measles, with greater frequency than in healthy children.

2. Broncho-pulmonary accidents rarely appear in connection with measles except in those cases in which the streptococcus or pneumococcus is to be found in the saliva. After death one may trace the pathogenic microbe which has been found in the saliva in the upper air-passages as far as the smaller bronchi.

3. The very frequent presence of the pathogenic agents of broncho-pneumonia in the saliva of children suffering with measles appears to explain the great number of broncho-pulmonary complications with that disease. Hence the necessity of the most vigorous antiseptics of the buccal cavity during the progress of measles.

A. F. C.

II.—MEDICINE.

Ashby: Convulsions as a Cause of Cerebral Hemorrhage in Early Life. (*Practitioner*, June, 1891.)

In most cases in which sudden hemiplegia occurs during the first two or three years of life, there is a history of severe convulsions. In some of these cases both the convulsions and the paralysis are due to the same cause; thus, there may be softening due to tubercular meningitis or arteritis, or an embolism or thrombosis may have occurred.

In another class it is quite certain that a hemiplegia owes its origin to neither of the causes just referred to. A young child has an attack of measles or pneumonia accompanied by a temperature of 105° or 106° F.; severe and repeated convulsions set in, followed by hemiplegia. Or a child in its

second year has a convulsion of long duration while cutting a tooth, or in consequence of an indigestible meal, and when the convulsions cease hemiplegia is discovered. Sometimes there is a definite period of coma or drowsiness following the convulsions. The subsequent history varies; the paralysis may improve or even disappear; in the majority of cases it persists, the limbs become more or less stiffened and the child is perhaps epileptic and possibly idiotic. In a few cases after severe convulsions there is no paralysis, but the mental progress of the child is arrested.

In these cases what part do the convulsions play? Several recent writers, including Goodhart, Money, and Osler, believe that convulsions may cause a cerebral hemorrhage which may give rise to a paralysis, but this is not recognized by most authorities.

There can be no doubt that the circulation of the brain is greatly disturbed during convulsions. In just what stage the vessels of the nerve-centres are distended or are in a contracted condition is uncertain, but it is probable that during the violent muscular exertions which take place in severe convulsions there must be an extremely disturbed condition of the circulation in the nerve-centres and a rupture of the capillary vessels is likely to take place. During spasm of the respiratory muscles venous congestion with over-venous condition of the blood is present, and extravasations may take place.

In support of these views the author reports a case, that of a boy, twelve years of age. He was healthy at birth and nothing abnormal was noticed until he was two years old, when he had a convulsion attributed to indigestion. Two weeks later he had another convulsion, more prolonged and of greater severity. This was followed by marked paralysis of the right arm and leg, and for eight years he had frequent convulsions.

When examined by the author he dragged the right foot in walking. The arm was stiff, the elbow was bent and semi-rigid, and the hand pronated. The knee reflex on the right side was exaggerated and the knee was slightly flexed. The mental condition was normal. He died a year later of tuberculosis.

Upon autopsy the membranes and outer surface of the brain were found to be healthy. Upon lateral section a cyst, five-eighths of an inch long, was found on the left side in the white substance between the fissure of Rolando and the corpus striatum. There were also four smaller cysts in the white substance on the right side. There was no sclerosis or induration in their neighborhood. By a lower section two more old blood-cysts were found in the frontal region, one upon each

side, and a third one at a still lower level. The cord was normal.

There is much reason to believe that a multiple hemorrhage took place when the boy was two years old and that one or more of the hemorrhages gave rise to the paralysis by destruction of some of the white fibres *en route* from the motor-surface centres to the internal capsule. There seems little room for doubt that the initial convulsions were the cause, not the result, of the hemorrhages. It is hardly conceivable that these multiple hemorrhages should be caused by any thrombosis, embolism, or arteritis. It seems probable that the reflex convulsions planted the hemorrhages in the brain, and these in turn gave rise to the epileptiform fits.

Raven: Primary Mumps of the Testicle. (*The Lancet*, April 18, 1891.)

A young man, exposed to the infection of mumps, complained of pain and swelling of the left testis. Four days later both parotids began to swell. Seven months previously he had had gonorrhœa succeeded by gleet. This was followed by orchitis of both testicles, but for three months previous to the mumps he had been quite well.

The writer believes that the orchitis rendered the testicle vulnerable, and that the virus effected an easier lodgement there than in the parotid glands. The mildness of the inflammation of the testicles may bear out Trousseau's distinction between mumps and parotitis. Mumps he regarded as engorgement (fluxion), but not inflammation of the gland.

Carpenter and Sayers: Croupous and Broncho-Pneumonia in Children; their Histological Identity. (*Practitioner*, June, 1891.)

The histological distinction between croupous and broncho-pneumonia is usually considered to be very marked. The authors are convinced, however, from a study of twenty-five cases that clinically presented all the features of broncho-pneumonia, that the histological difference between the two diseases is merely one of degree, and that it is by no means well-marked or striking, and that no difference of kind exists in the sense that in the one we have to do, exclusively, with a croupous inflammation and in the other with a catarrhal. The result of microscopical examination of these cases was as follows: The interlobular connective tissue was very generally infiltrated with leucocytes and the walls of the bronchioles were in the same condition. In most cases the epithelium lining the bronchioles was shed. There was marked diapede-

desis of the white corpuscles contained in the capillaries of the smallest bronchi. In some cases there was an accumulation of epithelial cells in the bronchioles, and occasionally fibrinous threads in the same situation. In some cases the lumen of the tube was completely blocked in this manner. A very marked feature was the presence in the alveoli, in nearly all the sections, of a fibrinous effusion. These fibrinous plugs were exactly similar to those occurring in croupous pneumonia. The alveolar walls were markedly infiltrated with leucocytes, and many were also found in the alveoli. The capillaries of the alveolar wall in most cases showed marked diapedesis of white corpuscles. Occlusion of the capillaries with red blood-cells was frequently observed, and their presence in the alveoli was of common occurrence, sometimes in large numbers. In the neighborhood of the veins a large excess of nuclei were visible. Occasionally, but to a comparatively small extent, epithelial cells were found in the alveoli. This presence of epithelial cells in the alveoli is generally regarded as the most characteristic feature of the histology of broncho-pneumonia.

From these conditions it seems to the authors that the inflammatory process in both forms of pneumonia is of the same nature, but that in the case of croupous pneumonia there is relatively a preponderance of the fibrinous element in the effusion, while in broncho-pneumonia the chief histological feature is the presence of excessive quantities of leucocytes, together with a tendency to epithelial proliferation.

Dickson: A Peculiar Case of Malformed Heart. (*Edinburgh Medical Journal*, July, 1891.)

The heart, as described, was in many respects a very extraordinary one, but had yet done service for forty-three years. The pericardium was much thickened, but the pericardial sac was quite obliterated. The right auricle was large and dilated; there was no auriculo-ventricular opening and no indication of one. Neither superior nor inferior vena cava opened into the right auricle. The only large opening was one into the arch of the aorta. It was triangular in shape and fully an inch across. There was another opening in the position of the coronary sinus, communicating with a chamber formed by the junction of the superior and inferior cavæ, which chamber passed deep down to open into the right ventricle. The pulmonary artery and its valves seemed normal. There was no evidence of an auriculo-ventricular opening. The walls of the left ventricle were hypertrophied; the mitral valve was normal, as was also the left auricle.

Railton: A Case of Infantile Spastic Diplegia with Tremors of the Disseminated Sclerosis Type. (*British Medical Journal*, June 27, 1891.)

The patient was nine years of age, and was admitted to the Manchester Hospital in February, 1891. She was born after a prolonged labor, with breech presentation, but was not asphyxiated. It was soon noticed that she was unusually quiet, and had little use of the legs, and did not begin to "notice" until she was about two years old.

The head was large but not hydrocephalic. There has never been any attempt at walking. When two years old she had a convulsion, and a year later two more, but none since that time. There was no history of syphilis.

On admission, she had a peculiar, rather imbecile look. The head was large and globular, and the forehead rather narrow. There was internal strabismus, which had existed since birth, but no paralysis or spasm of any of the muscles of the face. The fundi of the eyes were normal; there were no tremors, no nystagmus, no scanning nor drawling speech, and no vertigo. In intelligence she was backward.

All the superficial reflexes were active. She was well nourished, with no signs of rickets. In the arms there was no rigidity on passive movement, but when raised voluntarily, they show a fine tremor, but when any action was attempted requiring precision, the movement changed to a coarse oscillation, which gradually became extreme as she approached attainment. There was also some awkwardness (inco-ordination) in the way she grasped objects. The movements ceased as soon as the arms were at rest.

As is usual in birth-palsies, the brunt of the mischief had fallen upon the lower extremities. As she lay down these remained in a condition of extension, except that the left leg was slightly contracted at the knee. When raised from the bed, the feet had a fine tremor, and on passive movement, there was distinct resistance. The knee-jerks were exaggerated and ankle clonus was readily obtained. When supported under the arms, she was able to bring one foot alternately in front of the other with the toes dragging on the ground.

She was extremely sensitive to touch; the slightest prick of a pin anywhere about the limbs or body produced a universal involuntary twitching, extending even to the muscles of the face.

The case was interesting from its similarity to one of sclerosis in patches.

The tremors, paresis of legs with contracture at left knee,

the retention of normal electrical reactions, the exaggerated knee-jerks, the ankle clonus, and mental deficiency combined to impart a superficial resemblance to that disease. The distinction between the two diseases become easy, however, upon close investigation. The history clearly pointed to an injury of the cerebral cortex from meningeal hemorrhage at the time of birth rather than to the gradual development of a progressing disease. There was absence of any peculiarity of speech and no tremors of the head and no vertigo. The remarkable sensitiveness of the skin is not observed in sclerosis in patches, but has frequently been reported in cases of infantile spastic paralysis.

Girode: Diphtheria and Gangrene. (*Rev. Mens. des Mal. de l'Enf.*, April, 1891.)

Diphtheria and gangrene were long supposed to be practically the same process. This was denied by Bretonneau and Trousseau, but the author attempts to prove that the old idea was correct, or rather to prove the reality and the relative frequency of gangrene in diphtheria. He quotes cases reported by Rilliet and Barthez, Becquerel, Gubler, and Millard, in which gangrene appeared to take a predominant importance in the evolution of diphtheria, and narrates two cases which came under his own observation. The first was in an old man who died after four days illness from diphtheria, involving the tonsils, pharynx, trachea, and bronchi. Gangrene had destroyed almost the entire right tonsil; there was thrombosis of the right internal carotid and of the small vessels contiguous to the gangrenous tonsil, and there were false membranes upon the larynx, trachea, and bronchi. The urine contained much albumen. The other patient, a worker in the sewers, had a gangrenous patch upon the left side of the soft palate which healed under the use of chloride of zinc, but was followed by albuminuria, paralysis of the velum, the palate, and the pharynx, weakness of the lower limbs, and ataxia, with diminution of sensibility. A bacteriological examination in a given case may not always give conclusive results. Diphtheria may favor the penetration of saprogenic microbes, and, on the other hand, gangrene may not prevent the development of Loeffler's bacillus.

A. F. C.

Westphal: Multiple Sclerosis in Children. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

CASE I.—A boy, eleven years of age. Paresis of the lower extremities, slight contraction of the tendo Achillis, muscular emaciation, normal sensibility, exaggeration of the

patellar tendon reflex. Pupils slightly dilated, contraction of the visual field, speech slow, feebleness of the memory and intelligence. No hereditary antecedents at the age of five years, paresis of the right leg following pneumonia. At the age of six years convulsions with mild aphasia following a bite by a dog. Frequent attacks of unconsciousness since the age of eight years. At the age of ten years, after an attack of diphtheria, walking became difficult. The memory has been weak since the age of nine years.

CASE II.—A boy, nine years of age, head large, ptosis of the left eye, difficulty in vision, lateral movements of the eyes limited, nystagmus, small pupils, slow speech. Difficulty in walking, pes equinus, contraction of the left tendo Achillis, exaggeration of the tendon reflex of the upper limbs, paresis and mild ataxia, incontinence of urine. The boy's father suffers with mental disease.

The above two cases show the symptoms of multiple sclerosis of Charcot. Contracture and trembling are present to a slight degree in both. The second child died at the age of ten years. The autopsy showed hydrocephalus with a tumor as large as a date of the left optic thalamus. The tumor was soft, transparent, and contained several yellow foci somewhat harder than the rest of the tumor. The internal capsule and lenticular nucleus were intact.

A. F. C.

Stoeber: Meningitis caused by Hereditary Syphilis in Children. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

This paper shows the difficulties in the diagnosis of meningeal troubles when a child has tuberculous and syphilitic antecedents. A case of Hutinel's is quoted which is in point. A child two years old, the son of syphilitic and probably tuberculous parents, was seized with headache, constipation without vomiting, and paralysis of the sixth pair and the limbs on the right side. There were numerous syphilitic spots, deformities of the cranium and the nose, backwardness in dentition and in walking, scars, rhagades upon the lips, hebetude, multiple glandular enlargements, hyperostosis of the right knee, and a single enlarged and indurated testicle. Syphilis is suspected and appropriate treatment produces a cure. The same symptoms recur from time to time and partially yield to treatment. The child died at the age of seven months, and at the autopsy a tuberculous node as large as a nut was found at the occipital protuberance. The author's conclusions are as follows:

1. The limitations between tubercular and syphilitic meningitis are often inappreciable. In syphilitic meningitis, however, paralysis occurs early, fever is a rare occurrence, the cry

is plaintive, the pulse is not retarded, the respiration shows little irregularity, vomiting, constipation, and delirium may be wanting.

2. Tubercle of the brain with meningitis may cause the same phenomena.

3. The existence of syphilis is not sufficient to eliminate the possibility of existing tubercle.

4. Specific treatment may ameliorate the troubles of tubercular origin in a syphilitic child.

A. F. C.

Intermeningeal Troubles in the New-Born. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

The author refers to solitary primary hemorrhages as opposed to secondary hemorrhages consecutive to infectious disease, to rupture of the basilar arteries, or to false aneurisms. There may be two varieties.

1. Those which occur between the arachnoid and the pia mater, especially at the convexity of the hemispheres in the parietal region. They are usually bilateral.

2. Those in which there is a combination of the first form with hemorrhage between the arachnoid and the dura mater. These hemorrhages may cause serious accidents, with symptoms of compression, and even of asymmetry of the cranium. They are seen in children who are born in a state of asphyxia. Atelectasis will be found in the lungs, the blood will be thickened, but there will be no ecchymoses, or only very small ones, in the pleura. They occur not only with difficult labors, but with labors which have been spontaneous. They do not always result fatally. They are caused by displacement of the parietal bones during the passage of the head through the genital canal, compression of the superior longitudinal sinus resulting with regurgitation of the blood towards the veins of the convexity, and rupture of the veins.

A. F. C.

Burnet: Hysteria in Children under the Age of Five Years. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

The author believes with Ollivier that hysteria not infrequently occurs in children under five years of age. But its existence is often ignored because one usually awaits the appearance of convulsive attacks before making a diagnosis. The first symptoms are usually psychical. The children are usually intelligent, active, anxious to receive attention, with great mobility of feeling, pretentious, subjects of nocturnal terrors, of somnambulism, and sufferers from incontinence of urine. There are no peculiar marks upon the body to distinguish such conditions. Digestive troubles occur at a very

early age in connection with this condition; they include loss of appetite, dysphagia, fear of eating because of pretended spasm of the stomach or œsophagus. Respiratory troubles may take the form of asthma or cough. Circulatory troubles may take the form of palpitation, irregularity in the action of the heart, alternating redness and pallor of the countenance. Troubles in the secretions, including polyuria, are not frequent. There may be disorders of sensibility, including hyperæsthesia, neuralgia, and headache. Motor troubles rarely occur, and when they do occur are not apt to be severe. A. F. C.

Simon: Headache during Childhood. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

Seven groups of headache may be classified:

1. Headache from rapid growth. It is usually frontal, is increased by exercise, and co-exists with pain in the joints, periostoses, and hypertrophy of the heart. Treatment: muscular repose, tonics, liberal diet, phosphate of lime, malt beer.

2. Headache from intellectual activity. It occurs in intelligent and excitable children, who study too much, or in backward children, who acquire their lessons with difficulty. Treatment: for the first class of cases, cessation of intellectual work, physical exercise, but not so severe as to produce fatigue, lukewarm baths. In the second class of cases the work may be continued in moderation, plenty of exercise being enjoined.

3. Headache from digestive troubles. It occurs in children who eat too much or too fast, and occurs in one to three hours after eating. Treatment: properly regulated hygiene and diet; by bitter tonics before eating, warm drinks after eating. Constipation should be overcome.

4. Headache of nervous origin. It occurs in children who are excited by their manner of living. It is premonitory of future neuropathies, epilepsy, and hysteria. Treatment: baths, walking, massage, valerian, aconite, and antipyrin for the hysterical; belladonna and bromides for the epileptics. They should avoid taking cold.

5. Headache in children of gouty or rheumatic diathesis. It is sometimes accompanied by intense congestive phenomena, which simulate meningitis. There are manifestations of hereditary antecedents; there are neuralgias, arthralgias, myalgias; the urine contains phosphates, oxalates, and urates. Treatment: moderate diet, exercise in the open air, vapor baths with friction, laxatives, alkalines, salicylate of soda in doses of from twenty-five to thirty centigrammes, and tincture of colchicum in ten- to fifteen-drop doses daily.

6. Headache from anæmia and poisoning. In the first case it is due to bad air and hygiene, in the second to malaria, carbonic oxide, to excessive medication, to uræmia. Treatment: it should vary with the cause.

7. Headache from injury to the sensory organs. There may be chronic conjunctivitis, or keratitis, or iritis, which should be treated locally, and also by the internal use of sulphate of quinine in large doses. Troubles of refraction, hypermetropia, and astigmatism must be treated with suitable glasses. There may be mucous polypi in the nose, or hypertrophies, which call for local treatment. There may be adenoid vegetations in the ears, otitis, or foreign bodies in the auditory canal, which call for suitable treatment. A. F. C.

Broca: Cysts of the Brain in Children. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

The author has trephined successfully in three cases in which there were cysts of the brain, two of them being in children. In one the condition was hydrocephalus, and a palliative result was obtained. In another trephining was done over the centre for the left upper limb, a cerebral cyst was evacuated, and a Jacksonian epilepsy was greatly relieved. There are still nocturnal crises of slight intensity; there are no more severe convulsions, his left arm is getting stronger, his sight is improving, and his disposition is much less irascible.

Reynier has reported a case in which a cystic glioma was removed from the brain of a child ten and a half years old. The child began to have cerebral disturbance when three years old. When seven years of age he had occasional attacks of *grand mal*, and suffered with headache. When eight years of age he was treated with bromides without benefit. Finally an operation was determined upon and performed, a cyst being found embedded in the cortex, on the anterior border of the ascending frontal convolution, between the second and third frontal. A portion of the sac was left, the wound was sutured and drained. The attacks were renewed after sixteen days, and subsequently a second operation was performed. The cyst had reformed and it was entirely removed with the curette. The attacks again recurred, but subsequently subsided, and at last accounts there had been none for two months.

Doyen has also reported an operation upon a boy sixteen years of age, an intracerebral cyst being found, containing a third of a litre of albuminous fluid. At the end of two months the cure seemed complete. A. F. C.

Luzet: The Hæmatology and Hæmatological Diagnosis of Anæmia in Early Childhood. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

When anæmia develops in a child there is a special condition of the hæmatopoietic organs, which has great influence in the regeneration of the blood, and consequently in the anatomical results which appear when the blood is examined. Anæmia appears in early childhood under a great variety of aspects and with a variable etiology. While chlorosis does not appear at this period, there are, nevertheless, many and powerful causes of anæmia, including gastro-enteritis in the new-born, rachitis, and hereditary syphilis. There is also an anæmia related to acute and chronic infectious diseases, without mentioning those forms which are related to changes in the lymphoid organs. Of all the lesions of the hæmatopoietic organs, those of the spleen are most easily determined clinically in childhood. It will be found useful to distinguish in this description those forms of anæmia which are not accompanied by chronic megalosplenism from those in which this symptom can be determined during life. In the first class of cases (anæmia without enlargement of the spleen), the most noticeable are those which follow hemorrhage and those which occur during convalescence from acute diseases. Infantile cholera and infectious diarrhœa in general are attended by anæmia which may be excessive, especially if the patient has been previously debilitated by tuberculosis, syphilis, or repeated attacks of a similar diarrhœal trouble. The younger the child in such conditions, the more intense the anæmia. Syphilitic anæmia, without enlargement of the spleen, in young children, is quite comparable to anæmia from diarrhœa. In all these cases there are at times red cells in the circulation, and at other times they are absent. When red cells are found they are always small and have small nuclei, being very different from those which are found in pseudo-leucæmic anæmia. Anæmia with enlargement of the spleen has many forms, but the author limits himself to those in which there is either hereditary syphilis or rachitis. In the first of these varieties, the syphilitic enlargement of the spleen may be acute or chronic. The cachexia, or anæmia, in such cases is intense, and the hæmatopoietic organs are constantly endeavoring to produce compensatory effects for a long time. Red cells are present when the anæmia is of long duration, while with relatively acute anæmia from syphilis, especially when associated with diarrhœa, no red cells pass into the blood because the hæmatopoietic organs have not had time to effect their proliferation.

In the period of bony absorption in rachitis there is always more or less anæmia and often more or less enlargement of the spleen. This condition is to be differentiated from the rachitis of pseudo-leuchæmic infantile anæmia. Jaksch found in this condition a great diminution in the number of red and white blood-cells, and in the quantity of hæmoglobin. In children under five months of age a moderate number of red cells pass into the blood, but they show no tendency to multiply in that fluid. In older children there must be intense anæmia, and of long duration, to cause this passage of red cells. Such a process takes place readily, however, if there are hypertrophies of the hæmatopoietic organs, and especially the spleen. Whether the anæmia is simple or associated with enlargement of the spleen, it appeared that the greatest number of the red cells in the blood was furnished from the marrow of the bones. These forms of anæmia may be accompanied by a certain degree of leucocytosis, which diminishes with the cachexia, and is not accompanied by decided modification in the normal proportion of the different forms of leucocytes.

The syphilitic and rachitic forms of anæmia, which are accompanied by swelling of the spleen, form a natural transition between simple anæmia or anæmia secondary to infectious disease and the morbid group which is usually characterized as the group of diseases of the blood and including adenia, leucocythæmia, and pseudo-leuchæmic infantile anæmia. The last-mentioned disease is characterized by chronic enlargement of the spleen, decided anæmia, moderate leucocytosis, and the presence in the blood of a great number of red cells, many of which show the signs of karyokinesis. The glands are either not enlarged or only moderately so. Adenia is characterized by considerable enlargement of the different groups of glands. The enlargement is progressive, and in young infants quickly involves all the groups of glands. This disease is not accompanied by leucocytosis to any considerable extent. Infantile leuchæmia is characterized by an increase in the number of white blood-cells, by visceral lesions of a serious character, and is speedily fatal.

A. F. C.

Brandheudler: Spleno-Pneumonia in Children. (*Gaz. Méd.*, May 23, 1891.)

Grancher's writings have shown the importance of spleno-pneumonia in adults. The disease also occurs in children. It is more frequently announced in children by general phenomena, vomiting, fever, etc., than by symptoms which point directly to the seat of the trouble.

The disease is fully developed in the course of five or six days. The arching of the thorax, so manifest in adults is wanting in children, and the signs furnished by palpation and percussion give no special information in children. The semi-lunar space of Traube is sonorous. In auscultation the vesicular murmur is absent at the base, but there is a fine crepitation during inspiration which is of diagnostic importance. As to the progress of the disease, it has been observed that resolution occurs more promptly than in adults. The differential diagnosis should be made from pleurisy. There is no characteristic sputum as occurs in pneumonia in adults. Crepitation at the base of the lung, the gradual reappearance of vibrations, the persistence of sonorousness in Traube's space, and the absence of deviation of the sternum will assist in differentiating from pleurisy. In doubtful cases, exploratory puncture may be practised with proper precautions. As to the etiology of the disease, when it is primary, it may be a manifestation of tuberculosis, and this would give great gravity to the prognosis.

A. F. C.

Mirinescu: Peripheral Polyadenitis in Tuberculous Children. (*Gaz. Méd.*, May 23, 1891.)

The peripheral adenopathies in tuberculous children have heretofore been very little studied. Macroscopically the glands may show several degrees of change: 1. There may be glands which to the naked eye show no trace of tuberculous lesion. 2. Glands as large as a pea or a nut, red, and manifestly tuberculous. 3. Cheesy glands as large as a nut. 4. Small glands as large as a grain of wheat, showing to the naked eye a small cheesy focus. There may be two terminations to the glands, —caseation or sclerosis. They present hyperplasia of the connective tissue, catarrhal lesions of the lymphatic sinuses, and extensive changes in the vessels. The endothelial cells are hypertrophied and show karyokinetic figures. The fibrin of the blood is coagulated and thrombi are formed which include the hæmoglobin. The vascular lesion has an important bearing on the subsequent history of the case. If there is extensive obliteration of the vessel with thrombus and coagulation of fibrin, the gland will undergo cheesy degeneration. If, on the other hand, obliteration ensues from endoperiarteriitis the irritation of connective tissue will end in sclerosis rather than in caseation. In peripheral adenitis sclerosis is very frequent and is noticeable in the smaller glands, especially those in the groin. In the glands of the axilla and neck caseous degeneration is the more frequent. The histogenesis of tubercle appears to be the result of changes in the fixed cells and the

vessels. The penetration of the bacillus into the glands provokes karyokinesis of the fixed cells, which will form epithelioid cells, the giant cells will also have a vascular origin, and thus a very important part will be played by the endothelial cells of the vessels. The presence of bacilli may be easily determined in the caseous glands. These microbes are very rare or are absent in the sclerosed glands. They have different characteristics from the bacilli which are found in sputa, being longer, thicker, having a zigzag curve, and being granular. They are associated with bacilli of suppuration. Since Parrot's investigations, tuberculous adenopathy has been considered secondary to some other tuberculous focus, but it may be more correct to consider it as occurring simultaneously with some other tuberculous formation. Peripheral tuberculous adenopathies may be found in the groin, the axilla, and the neck. They are usually found in thin cachectic children with protuberant abdomen and exuberant growth of hair, with pale countenance and long eyelashes. Such children suffer with anorexia, and alternating constipation and diarrhoea. The peripheral adenopathy is therefore an important factor in diagnosis, and when it is present there is strong presumptive evidence of the presence of tuberculosis.

A. F. C.

Mettenheimer: The Treatment of Rachitis with Phosphorus. (*Jahrb. f. Kinderh.*, xxxii. 3.)

This method of treatment was originated in 1884, by Kassowitz, and within a few years his experience included thousands of cases. His teachings were soon followed or attempted by physicians in all parts of the world. The author's conception of rachitis is that it is a peculiar disturbance of nutrition, which is most frequently seen during the first two years of life, but may also come at a later period of childhood. It is seldom an acute disease, in favorable cases lasts a few months, and in unfavorable ones a few years. In its results it usually persists during life. It is accompanied with disturbed functions of the intestinal canal, with deficient deposit of lime in the bony system, with increased irritability of the nervous system, and with a tendency to catarrhs and inflammations of the respiratory organs. The particular forms of deformity of the bones and disorder of the intestinal canal are very numerous, and are specified in the author's paper. The phosphorus treatment has been adopted by the author in a series of cases, only those cases being selected which were plainly and unmistakably rachitic. The method of Kassowitz excludes all other medicinal agents as means of treatment, good hygiene

and diet being presupposed, however, in all cases. The author did not adhere closely to this plan, salt or malt baths being given when deemed suitable, the supply of fresh air being always ample, and a carefully regulated diet including the use of wine being provided.

The experiments were made upon hospital children who could be seen daily, though a few cases were treated in private practice under exceptionally favorable conditions. Great difficulty was experienced in carrying out the treatment on account of the difficulty with which it was tolerated by the patients, and also the difficulty of preparing it in a perfectly soluble and acceptable form. In the early periods of practice the doses given were much too large; subsequently it was found that one-sixteenth of a grain was a sufficiently large dose. The solution which was used contained one centigramme of phosphorus in one hundred grammes of oil of sweet almonds. The question having arisen whether, in case of improvement, it might not be due to the oil rather than the phosphorus, and also whether it might not be the oil which disturbed the stomachs of patients, the oil was discontinued and a simple emulsion of phosphorus used instead, but the gastric and intestinal irritation still continued. Among the various preparations which have been made may be mentioned a phosphorus water, a solution of phosphorus in bisulphide of carbon, another in hot spirits of wine, a mixture with liquid vaseline, and a combination with zinc. There are objections to all of them, partly because they quickly disagree with children, partly because the quantity of phosphorus which they contain is very uncertain, partly because they have not been sufficiently tried. A preparation which gave the best results as far as toleration by the stomach is concerned was the following:

R Phosphori, .01 gramme;
Ol. menth. pip. æther, 1 gramme;
Spts. æther. sulph., 14 grammes.

Sig.—One drop daily in syrup, sweetened water, or milk, to be increased if possible.

The quantity of phosphorus in such a dose is very small, but it can be continued for months and years if necessary, in some cases, though in others it will produce gastric disorder as well as the more powerful preparations. Only a small quantity of the mixture should be prepared at a time, as it decomposes somewhat readily. Phosphorus has been used by homœopaths for a long time to cure diarrhœa. It has been the author's experience that it would produce diarrhœa even when small doses are used. In two cases phosphorus was combined

with lead and the diarrhœa yielded very quickly. It is thought that the strongest argument against the method of treatment of Kassowitz is that it is usually difficult to say in any given case that the phosphorus has produced a cure, and that the case would not have done just as well if left alone, or rather if hygiene and diet had been entirely satisfactory. It is a matter of observation that the simpler cases of craniotabes, with persistently open fontanelles, retarded dentition, and swelling of the ends of the bones get well of themselves if the children are properly cared for in their homes. Widerhofer and some others believe that phosphorus is actually harmful when craniotabes exists, and also that it should not be used with laryngismus stridulus. Kassowitz earnestly recommends it for the last-mentioned condition. The author tried it in two cases, the children being also rachitic, and death resulted in both. In a third case there was no appreciable effect, and in a fourth there was possible benefit. In the severer forms of rachitis the phosphorus treatment is almost impossible on account of catarrhal and inflammatory troubles which usually coexist. On the whole, the author seems to think the value of phosphorus in the treatment of rachitis may have been over-estimated.

A. F. C.

Reed: Enterocolitis in Young Children. (*Journ. de Méd.*, April 12, 1891.)

The author reports several severe cases of enterocolitis in early childhood, accompanied with hyperthermia, diarrhœa, excessive agitation, and even with coma. He began his treatment by evacuating the intestinal canal by means of a mild laxative. Then, if the trouble persisted, he ordered a bath at 32° C. for ten or fifteen minutes. In some cases he found it useful to apply a small quantity of cold water to the head at the same time with the bath. In some of the cases the effect of this treatment was magical. As a calmative agent he preferred the use of the warm bath to opiates, the dangers of which to young children are sometimes very marked.

A. F. C.

Saalfeld: Eczema in Children. (*Journ. de Méd.*, April 12, 1891.)

In treating the eczema of the face and hairy scalp of fat children the author recommends that the quantity of nourishment be diminished, and especially that all fatty articles of diet be avoided, constipation being avoided by means of suitable rectal enemata. The crusts which accumulate should

be softened with olive oil, and after they have been removed the surface should be anointed with the ointment as follows :

R Acidi borici, 1.50 grammes ;
 Zinci ox., 5 grammes ;
 Vaselini,
 Amyli pulv., aa 30 grammes.

If there is a general eczema of a scrofulous character, the alimentation should be improved, the digestive organs regulated, and cod-liver oil with iodine, phosphorus, or arsenic administered. The skin should be greased with vaseline, and upon this some bland powder should be added. Applications of tar are not recommended, as they are too irritating for the skin of children. Instead of tar the following formula may be used :

R Hydrarg. præcip. alb., 1 gramme ;
 Balsami Peruv., 5 grammes ;
 Ung. Wilson, 30 grammes.

A. F. C.

III.—SURGERY.

Paget, Stephen : Three Cases of Strangulated Hernia of the Cæcum in Infants. (*The Lancet*, April 25, 1891.)

Straugulated hernia of the cæcum in infants is a rare condition. Howard Marsh has collected forty-seven cases of strangulated inguinal hernia in infants. In thirty-four the sac was opened at the time of operation. Out of these only one was a hernia of the cæcum.

Mr. Treves, in the tenth volume of the *Transactions of the Medical Society of London*, and Mr. Lockwood, in his "Lectures on Hernia," call attention to two facts : 1. The existence of a proper sac in these cases. 2. The existence of a fold of peritoneum containing muscular fibres,—the plica muscularis,—which passes down from the cæcum along the back of the sac, and helps to cause the hernia by drawing or guiding the cæcum into the sac.

Both these observations are illustrated by the cases.

CASE I.—A male infant, one year old, strong and well nourished, was admitted with strangulated right scrotal hernia. The rupture had been noticed soon after birth. The child had worn a truss. The day before admission the rupture came down ; the child vomited several times and had difficulty in micturition. The hernia was large and tense ; no impulse. There was a proper sac. It contained a loop of small intes-

tine and some omentum, and above these at the neck of the sac was the cæcum.

The bowels acted twice the same evening, and the child did well.

CASE II.—A male infant, three months old, was admitted with strangulated right scrotal hernia. The rupture had been noticed three weeks after birth. The child had worn a worsted truss. The day before admission the rupture came down; there was repeated vomiting and retention of urine. The child was not collapsed. The hernia was large and tense; no impulse. Operation, as in Case I., at once. There was a proper sac; in it was the cæcum. The vermiform appendix came forward from the lower aspect. After the stricture was divided, the hernia was reduced by elevating the infant's legs. The bowels acted a few hours later. The wound did well and the bowels acted regularly, but on the fourth day the child was taken with acute bronchitis, and died on the twelfth day after operation.

CASE III.—A male infant, three months old, was admitted with strangulated right inguinal hernia. There was vomiting and some retention of urine. The hernia was large and tense; no impulse. There was acute inflammation of the scrotum. Under chloroform the hernia was reduced, and all went well for eleven days. The bowels acted freely and regularly, and the child gained in flesh. Then the scrotum became inflamed, distended, and resonant. Under chloroform the swelling was partly reduced, with a loud, gurgling sound, but in two hours the condition was as bad as ever. The child vomited; the bowels acted freely. Distinct emphysematous crackling at the bottom of the scrotum was heard. It was plain that the bowel had given way. The tumor was carefully cut down upon, but no distinct sac found. At the lower part of the bowel was a ragged opening; the tunica vaginalis was full of faecal matter. The bowel was stitched into the wound. For about a month the infant did well; the bowels acted twice daily through the wound, and there was never any great prolapse. But at the end of a month the infant began to lose flesh rapidly, and died between the fifth and sixth week.

These cases are worthy of note, because strangulated hernia seldom occurs in infancy. In a large proportion of Mr. Marsh's cases the hernia was congenital. It was three times as frequent on the right side.

As regards the symptoms of strangulated hernia in infants, the writer points out two symptoms in his cases that are seldom met with in adults. One of these was retention of urine, the other was acute inflammation of the skin of the scrotum.

Of the three cases, the first made a good recovery. The second recovered so far as the hernia was concerned.

The specimen from this case shows the plica vascularis passing down into the sac. The great length and free mobility of the vermiform appendix suggest that it may have made its way into the sac first, and so may have drawn the cæcum after it.

In the third case the author cannot doubt that he really reduced the hernia when the child was admitted. The case did perfectly well; the bowels acted freely and regularly up to the time of operation, when the bowel had actually burst into the tunica vaginalis. It is therefore impossible to say exactly at what time the cæcum came down again and was strangulated.

As regards the treatment, it appears that it might have been better if less had been done. In two cases of rupture of bowel reported by Mr. Marsh, spontaneous cure followed, the bowels again acting the right way.

On the other hand, as it was a hernia of the cæcum, the continuity of the bowel might perhaps not have been restored as in Mr. Marsh's cases. The specimen from the third case shows the conditions. It is figured in the original paper.

In all three cases there was a complete hernial sac. There was no communication between the sac and the tunica vaginalis in the first two cases. The third case is uncertain.

Keetley: Three Cases of Tubercular Peritonitis in which Abdominal Section was performed; Remarks. (*The Lancet*, November 15, 1890.)

The notes of these cases are published, as they are a not unimportant contribution to our increasing knowledge of the effect of operative measures on this disease.

The paper of Professor König, given at the recent Congress at Berlin, gives one hundred and thirty-one cases in which operation had been done for tubercular peritonitis. Of these, no less than one hundred and seven were left in a satisfactory condition.

CASE I.—Child, female, aged four years; a family history of phthisis. Patient had not been well for twelve months. Abdominal symptoms came on suddenly and had existed ten days when the abdominal cavity was opened. The intestinal coils that presented were inflamed and matted together. There were universal adhesions. There was general roughening of the peritoneum, and both the covering of parietes and intestine was found to be studded with tubercles.

Iodoform gauze wet in sublimate solution (1:2000) was

left in the opening. The child died on the sixteenth day after operation.

CASE II.—A boy, aged six years, had had measles and dropsy in last four months. Abdominal symptoms came on suddenly.

Abdominal section was done. The coil of small intestine was injected, somewhat rough, and had lost its natural glistening appearance; it was studded with small tubercles, the surface everywhere presenting the same appearance. The mesentery everywhere presented a like appearance. The coil of intestine was dusted with iodoform and the wound treated as in Case I. Two months later: he looks fat and well; bowels are regular; abdomen of normal appearance.

CASE III.—Young woman aged eighteen; operation done two years ago by Dr. Venn. A small median exploratory incision demonstrated the presence of tubercular peritonitis. Dr. Keetley performed an operation two years later for hernia of the cicatrix. The point of greatest interest is that at the second operation not a sign of peritoneal tubercle was seen, though only about twelve months had elapsed since the same peritoneum was found studded with it.

Remarks.—Dr. Keetley does not consider the relationship of cause and effect between the operation and the cure to be proved yet. We have no sufficient standard of comparison by means of which we can compare the operated with the non-operated, and also those we have are open to the objections which lessen the value of all heterogeneous collections culled from the journals.

There are reasons, such as those furnished by the immediate improvement of individual cases, for giving credit to operative measures.

How can they act beneficially?

Bearing in mind the delicacy of the tubercle bacillus and the reasonable probability, from the many facts now known, of spontaneous cure of peritoneal tuberculosis, that the peritoneum is not a place where it can always easily and permanently thrive and protect itself from the forces inimical to it in the body, we may be prepared to grant that even trifling disturbances coming from either within or without may kill the disease and its cause. To take away dropsical fluid may be to strike a blow; to let in air or light; even mechanical disturbance of the tubercles by the passage of the operator's fingers over them, or by flooding them with water, and even by the action of opposing surfaces rubbing against one another when the peritoneal cavity has been deprived of fluid and adhesions separated, may be injurious to the vitality of the

bacilli, although it is generally regarded as favorable to infection.

We must distinguish between infection and culture. The conditions favorable to one may not be so to the other. Moreover, the mere fact of being inoculated with a bacillus may be a protection to the sufferer against the ravages of the inoculated organism. It is conceivable that a human being or other animal may cultivate and attenuate a protective bacillus in his own peritoneal cavity and profit by the culture himself.

With regard to acknowledged germicides, König's collection of statistics shows greater success with than without, but we ought to know more details before inferring too much from this.

Look at the three cases reported. The one that recovered was the one which was closed without iodoform and sublimate.

Still, the writer is in favor of germicides, but the user ought to bear in mind how easily they can be abused, especially in young children.

Lacey, E. P.: Successful Suprapubic (McGuire's) Lithotomy in a Child. (*Va. Med. Monthly*, 1891, xvii. 905.)

The patient was a boy four years old. He had been afflicted two years, and was very weak and emaciated from his long suffering. The suprapubic operation, after Dr. Hunter McGuire's method, was done. The lower portion of the abdomen and generative organs were thoroughly washed with soap and water, and then bathed with a bichloride solution. The bladder was irrigated with boracic acid solution, and then filled with warm water, and a rubber band was applied to the penis to prevent the escape of the water. A rubber bag was introduced into the rectum and inflated with water, for the purpose of lifting the bladder out of the pelvis and bringing it in contact with the anterior wall of the abdomen. The incision in the bladder was only large enough to introduce the index-finger. Two stones, weighing collectively one hundred and ten grains, were removed. No sutures were put in the wound, as it was left open to facilitate drainage. The bladder was thoroughly washed out with warm carbolized water and the wound dressed with iodoform gauze. The bladder was washed out every day by introducing a catheter in the penis and forcing water through it with a hard rubber syringe, allowing it to escape through the suprapubic wound. The patient was dismissed cured in three weeks after the operation.

The suprapubic operation is preferable for children, as the small size of the neck of the bladder makes the perineal operation both difficult and dangerous, while the former is simple and comparatively safe.

Niesley, C. M.: A Case of Sarcoma of the Kidney; Operation; Recovery. (*Annals Gynec. and Pæd.*, 1891, iv. 311.)

The patient was a girl, three years old. Parents healthy; Pennsylvania Germans; child always well and active. Six weeks after a fall, which occurred a year ago, a swelling was noticed in the right side below the ribs, which steadily increased in size until she came to the hospital. She was fairly well nourished, well grown for her age, quite pale, no jaundice. There is found on examination a large, elastic, rounded tumor, occupying right lumbar and right hypochondriac regions, and extending into umbilical and left hypochondriac regions. The tumor is in close relation to the liver but apparently not connected with it. Dull on percussion. No fluctuation. Hard and non-elastic to touch.

The tumor was removed on June 11, 1890. An incision was made in the median line of abdomen above the umbilicus. The peritoneum was incised and separated from the growth after considerable difficulty. The pedicle, which contained the renal vessels and ureter, was secured *en masse* with a Staffordshire knot of silk and divided with the Paquelin cautery. The tumor weighed about five pounds, and presented an ovoid contour, for the most part smooth, but with nodular projections here and there on its surface. Section of the tumor presented, macroscopically, an outside rim of fibrous tissue interspersed with small cysts here and there, and internally larger cysts and much granular matter, especially at site of pelvis. Only here and there could any of the normal kidney tissue be discovered.

A counter-opening for drainage was made posteriorly through the lumbar muscles. The edges of the posterior layer of peritoneum were united with catgut, and the abdominal wound closed with deep silver and superficial catgut sutures. The operation lasted one hour and a quarter, and was well borne. Chloroform was used as the anæsthetic. The child made a good recovery, and is now strong, ruddy, and well, except for a small sinus in the lumbar region which still persists.

Thomson: Two Cases of Inguinal Hernia in Infants cured by Regulation of the Diet Alone. (*Edinburgh Medical Journal*, June, 1891.)

Two cases of spontaneous cure of hernia are reported in infants, one of eleven weeks and one of four months. It seems doubtful that the change in diet could have had more than an indifferent effect.

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Original Communications.

CONTRIBUTION TO THE SUBJECT OF OPERATIVE TREATMENT OF CHRONIC HYDROCEPHALUS IN CHILDREN.*

BY A. O. KARNITZKY, M.D.,

Kiew, Russia.

(Concluded from August number.)

CASE III.—*April 21, 1889.*—Th. Lewtschuk, the seven-months-old daughter of a conductor, was, at the request of Dr. T. W. Troitzky, admitted to the surgical clinic of Professor A. Rinek. According to the report of the mother the child was born healthy. After the second month the head grew rapidly without the appearance of any acute symptoms. At times she suffered with dyspepsia; the child was nursed by the mother during the whole period. The parents were healthy; had had five children, three of whom were dead (one of diphtheria, the second of inflammation of the brain, and the third of small-pox). The fourth child is now three years old and quite healthy. The nutrition of the sick child is satisfactory; rachitic changes are present on the head and on the epiphyseal ends of the bones of both upper extremities. The neck is thickened. In the course of the sagittal suture for a space of twenty-four centimetres ossification is entirely wanting. There is slight exophthalmia. Three months ago two lower incisors appeared. The circumference of the head is sixty and a half

* Translated by Francis P. Whittlesey, M.D., Canaan, Conn.

centimetres, the distance between the ears forty centimetres, the lateral diameter of the large fontanel thirteen and a half centimetres.

The first puncture was made on April 25, two and a half ounces of fluid being removed. The temperature had lately been normal and the general condition satisfactory. The fluid continued to ooze from the wound, moistening the dressings, until April 28. On the 29th of April the result of measuring was: Circumference, sixty centimetres; distance between the ears, thirty-nine centimetres; diameter of the large fontanel, twelve and a half centimetres. On April 30 the child left the clinic.

CASE IV.—This case was treated by Dr. T. W. Troitzky at his residence. Eva Feldstein was eleven months old; she was born with a small but soft head, which had grown rapidly since her sixth month. The child was nursed by the mother; the parents are entirely healthy; there are no teeth. Protrusion of the eyeballs, slightly marked. Occasionally after a bath convulsions have occurred. The circumference of the head was seventy centimetres; the distance between the ears, fifty-one centimetres; the lateral diameter of the greater fontanel, twenty-six centimetres. The head presents the appearance of a leather-like bag with extremely thin bones; the sutures are widely spread apart; in some places bony formation is entirely lacking. The first puncture was made on April 28, to the right of the sagittal suture, in a corner of the greater fontanel; three-fourths of a glass of perfectly clear liquid was evacuated. The second puncture was done on April 28, three-fourths of a glass of fluid being again removed. The day following the puncture the temperature was normal, general condition satisfactory. On May 2 measurements were: Circumference, sixty-nine centimetres; distance between the ears, fifty-one centimetres. May 3, the third puncture, three-fourths of a glass of fluid removed. On May 5 the fourth operation was done to the left of the sagittal suture, in a corner of the fontanel. More than a glass of fluid removed. Marked falling in of the fontanel occurred after the operation. Head measurements: Circumference, sixty-eight centimetres; between the ears, forty-eight centimetres. After

the puncture the child quietly fell asleep. In the evening convulsions set in, which were repeated the next day, with a temperature of 40° C. Pulse and respiration increased. Vomiting was absent. During the next five days the convulsions were repeated, but in a milder degree. The two lower middle incisors appeared May 10 to 12. Convulsions ceased, temperature normal, and general condition good. May 20, circumference of head, sixty-nine centimetres; distance between the ears, fifty-one centimetres.

May 21.—The fifth puncture was made to the left of the sagittal suture; half a glass of fluid removed. No more convulsions occurred during the next few days. Temperature normal.

May 24.—The sixth puncture, half a glass of fluid. Temperature normal, general condition good. Circumference of head, sixty-two centimetres; distance between the ears, fifty-one centimetres; diameter of fontanel, twenty-five centimetres. There existed a mild degree of dyspepsia. The child was now removed from Kiew.

CASE V.—T. Rosenberg, aged five months, pretty well developed, nursed by the mother. Two months before the present illness had facial erysipelas and, following that, of the scrotum. Temperature was 40° C. and accompanied with convulsions, which for three days yielded to no treatment. After two weeks there was a repetition of the convulsions and catarrhal pneumonia of the right side, which lasted seven weeks. During the first seven days of the pneumonia convulsions occurred every two hours, later on less and less frequently. The catarrhal pneumonia, however, disappeared and the child was in pretty fair condition. Then convulsions again appeared, coma, great stretching of the fontanel, and contractions of the limbs; vomiting was not present. In this condition the child was admitted on January 4, 1890, to the Israelitish Hospital at Kiew.* The head of the child seemed enlarged, the fore part of it was projected forward. On feeling the fontanel a distinct vibration was perceived, which

* Before admission to the hospital this child was treated by Dr. L. S. Simon, who has kindly furnished the above notes.

pointed to the presence of free fluid. The sutures were wide; the anterior corner of the fontanel was enlarged and ran forward into the forehead as far as the glabella. Circumference of the head, forty-three and a half centimetres; distance between tubera parietalia, twenty-six centimetres. Cheyne-Stokes phenomenon existed. The pupils did not react; there was a somnolent condition and contractures of the limbs.

The puncture was made with a thin lancet externally to the right corner of the greater fontanel. After withdrawal of the trocar no fluid was evacuated, either spontaneously or by aspiration, but later it escaped by drops to the amount of one and a half dessertspoonfuls. The wound was sprinkled with iodoform and a bandage applied. No improvement was observed during the whole day of the operation. Three evacuations of the bowel occurred, and once there was vomiting. The bandage became wet, about one dessertspoonful of fluid being evacuated, which, with the one and a half above mentioned, makes a total of two and a half dessertspoonfuls of fluid. Bandage changed. The child takes the breast eagerly; the pulse ranges throughout this period from 144 to 150, and is regular; temperature from 37.5° C. to 38° C.

January 5.—No change. Three formed stools. The child perspires continually and does not nurse well. Pulse ranges from 144 to 150; temperature, morning, 38° C.; evening, 37.5° C. The abdomen is less tympanitic. Bandage removed, quite dry. The opening has closed. Vomiting occurred once. Prescribed emulsion of oil of sweet almonds, one teaspoonful every hour.

January 6.—Child has slept through the night. Five stools. It nurses with difficulty. No improvement observable. Circumference of head, forty-four centimetres. Pulse 144; temperature, morning, 37.8° C.; evening, 37.5° C. Vomited once. Treatment continued.

January 7.—Two stools during the night. Pulse 132; temperature in the morning, 37.5° C. Cheyne-Stokes phenomenon less marked. Contractures of the limbs weaker. Nurses willingly. At 1 P.M. the second puncture was made. Fifty-eight cubic centimetres of a turbid fluid of alkaline reaction was removed. At 4 P.M., pulse 144. Cheyne-Stokes

symptoms again marked; contractures not diminished. On the right hand the fingers may be separated. During nursing the contractures are weaker, so that the limbs may be flexed. During the day there have been five passages from the bowels of thick fæces, coated with mucus and odorless. Morning temperature, 37.8° C.; pulse 150. Other symptoms unchanged. Prescribed infusion of convallaria majalis, .24 to 75.

January 8.—At 5 A.M., vomiting. One stool. Chest measurement, thirty-eight centimetres; abdomen, forty-one centimetres; length of body, fifty-nine centimetres. Morning temperature, 37.1° C.; evening, 37.8° C.; pulse 144 to 150. Moderate cough. On auscultation dry râles are heard. The bandage is not wet through. Extreme thirst. Last evening the child drank half a glass of water. At 3 P.M. two stools of liquid, slimy fæces. Contractures in the upper extremities are slighter, in the lower they are unchanged. Ptyalism. The pupils are more dilated and react. Circumference of the head, forty-four centimetres. The child slept in the evening; had two stools. The contractures are apparently weaker. It takes the breast unwillingly. Treatment continued.

January 9.—The tension on the fontanels is quite considerable. Circumference of head, forty-four centimetres. Temperature 36.8° C.; pulse 138. Contractures less. Pupils more dilated and do not react. Cough at night. Two movements, fæces thick, mingled with mucus. At 1 o'clock P.M., temperature 37.8° C.; pulse 144 and irregular. Vomiting once. Convulsions every half-hour, lasting from two to three minutes. The spasms lasted until 10 P.M., temperature 37.7° C. Prescribed infusion of convallaria majalis, .24 to 75; sodii benzoati, 1.20. A teaspoonful every two hours.

January 10.—Circumference of head, forty-four centimetres. Temperature 38.5° C.; pulse 150, weak and irregular. Two stools. The abdomen is soft and small. Contractures in the upper extremities less, in the lower ones *in statu quo*. Pupils contracted and do not react.

January 11.—Convulsions have ceased. Five movements during the night. Child does not care to nurse. Pulse 150, pretty good. Cheyne-Stokes symptoms continue. The contractures are very considerable. In the right inguinal region

a movable enlargement of the size of a pigeon's egg is noticed. Temperature 39° C. No puncture was made on account of the high temperature, at night, 38.5° C.; after phenacetin, 37.7° C. Ordered calomel, .01, three times a day.

R Phenacetin, .18;
Aquæ destillatæ, 30;
Vin. portense, 4;
Syr. simpl., 8. M.
Sig.—Three teaspoonfuls daily.

Warmth to the feet. Hippocratic bandage.

January 12.—Temperature, morning, 39.2° C.; evening, 37.7° C. No convulsions.

January 13.—Symptoms *in statu quo*. Pulse imperceptible. No discharge of urine. Does not nurse. Circumference of head, forty-three centimetres. Temperature 38.9° C. The Hippocratic bandage applied. Six stools during the day. Evening temperature 38.5° C.; pulse 150. Abdomen somewhat distended. Inguinal swelling unchanged. No spasms. Does not nurse. Severe vomiting at night. Dry râles in the chest.

January 14.—Three violent fits of vomiting during the night. Morning temperature 37° C.; pulse 144, good. Circumference of head, forty-two and a half centimetres. Pupils more dilated. This morning, three more attacks of vomiting. Six stools. Tension of fontanels much less. During the day the third puncture was made, and sixty cubic centimetres of transparent fluid removed. Prescribed infusion of ipecacuanhæ, .12 to 75; phenacetin .18; three teaspoonfuls a day. Hippocratic bandage. Heat to the feet. Wine.

January 15.—Circumference of head, forty-two centimetres. Contractures not diminished. Five stools during the night. Vomited once. Morning temperature 37° C.; pulse 144. Abdomen œdematous, the swelling smaller. Pupils do not react. Cough less. Evening temperature 37° C.; pulse 144, good quality. Child nurses. Four stools during the day. Directions the same.

January 16.—Five stools. Vomits once. Morning temperature 37° C.; pulse 150. Walls of abdomen somewhat œdematous; the swelling cannot be felt. Rigidity of limbs

not less. Pupils alternately dilated and contracted. Evening temperature 37° C. Treatment remains as above.

January 17.—Five stools during the night. Vomits once. Circumference of head, forty-two centimetres. Rigidity of limbs undiminished. Morning temperature 37° C.; pulse 144. Abdominal wall œdematous. Six stools during the day. Cough less. Evening temperature 37° C. Treatment continued.

January 18.—Eight stools during the night. Morning temperature 37° C. Circumference of head, forty-two and a half centimetres. Abdomen somewhat distended. Six more stools during the day. Evening temperature 37.2° C. Rigidity of lower extremities not lessened. Pulse weaker. Profuse perspiration. Vomits once.

January 19.—Violent convulsions appeared during the night, and in the morning the child died with symptoms of collapse.

In the first four of the above reported cases of paracentesis of the brain, we observed a diminution of the symptoms of hydrocephalus chronicus. In the fifth case there was, to be sure, no special inclination to improvement in the symptoms after puncture, but inflammatory reaction was absent in this case as well as in the first four.

In the first case, in a child five months old, the disease was apparently arrested; the circumference of the head fell from forty-nine centimetres to forty-four centimetres; a considerable number of ossific centres appeared, and from the 16th of December, 1886, till early in March, 1887, the child was quite well. At this time, however, a complication arose consequent upon the eruption of the incisor teeth; digestive disturbances appeared; the size of the head increased, and by the middle of March was forty-nine centimetres in circumference. Unfortunately renewed puncture yielded only transient improvement. At the end of March the circumference of the head was fifty-six centimetres. Death occurred with convulsions.

In the second case puncture was done in a child one year and four months old, the circumference of whose head was fifty-nine centimetres. After four punctures, performed at

intervals of from seven to ten days, the measurement was fifty-seven centimetres. After each puncture the child was, according to the mother, livelier, took the breast eagerly, slept more quietly at night, and cried less in general. After the last puncture the measure showed sixty centimetres. As the mother left Kiew with the child, no more punctures could be made.

In the third case a single puncture was made in the case of a child seven months old. As a result the circumference of the head diminished from sixty and a half centimetres to sixty centimetres. During the five days' stay in the clinic the temperature was normal, the general condition satisfactory. On the day of departure from the clinic, on April 30, 1889, the circumference of the head was sixty centimetres; distance between the ears, thirty-nine centimetres; lateral diameter of the anterior fontanel, twelve and a half centimetres.

In the fourth case, in a child eleven months old, six punctures were made in the course of a month, whereby there was removed a clear fluid amounting in quantity the first three times to three-fourths of a glass each time; to somewhat more than a glass at the fourth time, and to half a glass at the fifth and sixth times respectively. From the 28th of April to the 5th of May the temperature was normal on the day following each of these punctures; the general condition good. At this time the size of the head was lessened by one centimetre. After the fourth puncture the anterior fontanel sank markedly and the circumference of the head was diminished by another centimetre. Measurements of the head made on May 20 showed circumference, sixty-nine centimetres; distance between ears, fifty-one centimetres. After the two following punctures, on the 21st and 24th of May, there were no spasms, and the temperature was normal. The child was removed from Kiew on May 26.

Case four emphasizes the importance of adopting puncture in those severe cases in which the head of the child resembles a large leathern bag filled with a fluctuating fluid. Unfortunately, we were not able, for reasons for which we were not responsible, to follow up the last three cases to their termination; however, one may see from the course of the disease that it yielded in some degree to treatment.

In the fifth case three punctures were made in a child of five months, whereby there was removed at the first about two and a half spoonfuls of a clear fluid of alkaline reaction; at the second, fifty-eight cubic centimetres, and at the third, sixty cubic centimetres of a turbid transparent fluid. The circumference of the head fell from forty-four centimetres to forty-two centimetres and rose again to forty-two and a half centimetres only the day before death. During this time the temperature was almost normal. Of all the symptoms in the last case, the severe diarrhoea and vomiting strike us most forcibly, and they had a most unfavorable influence on the whole course of the disease, rendering all treatment useless. Unfortunately, we were not able to obtain permission to make an autopsy of the child, as this is contrary to the regulations of the Israelitish Hospital.

It remains for me to say a few words concerning the technique of the treatment. Puncture of the skull is performed with a trocar having a diameter of two millimetres; the instrument used should be a perfectly new one, never used for any other purpose; the depth of the puncture varies from one to five centimetres. The site selected is usually a lateral corner of the greater fontanel, and one recedes from the median line to the right or left in order to avoid wounding the sinus falciformis major. More rarely the puncture is made in the sutura lambdoidea, near the smaller fontanel, or at some especially prominent and fluctuating point; only one must guard against the lateral deviation of the canula. If after removal of the stylet the fluid does not flow, the instrument must be introduced more deeply or withdrawn and another site for the puncture selected. The fluid should be withdrawn slowly and evenly.

For an even evacuation of the fluid, Pfeiffer* recommends the apparatus presented by Mosler as early as 1867. The amount of fluid to be withdrawn at one sitting varies from one hundred and fifty to two hundred grammes. It were not wise to remove a larger quantity, as air might easily gain access to the cavity of the cranium and arterial hyperæmia of the brain result.

* Loc. cit.

If, during the operation, the pulse or respiration should become irregular, it should be discontinued. After withdrawing the trocar the point of puncture should be covered with strips of adhesive plaster and a light antiseptic bandage be applied to the head.

I can but allude to the proposition of Bouchut * to make the puncture in chronic hydrocephalus with a capillary trocar, at the end of which is a small ball of wax, through the nostrils. This idea occurred to him as he was reading of the cure of hydrocephalus by the spontaneous escape of the fluid through the nose. The trocar is introduced into the nostril at the side of the septum, parallel to the line of the nose, and plunged through the cribriform plate of the ethmoid bone, being at the same time slightly inclined outward.

By this means he removed in one case three hundred grammes of fluid. The child died, but was already weak before the operation. In another case he repeated the operation in a child three years old, but without result. In conclusion it is my duty to present to my most honored teacher, T. W. Troitzky, my most sincere thanks for placing at my disposal in this work the cases operated upon by him as well as the literary sources upon which I have drawn.

THE PREVENTION OF PULMONARY PHTHISIS IN THE ADULT BY THE PROPER CARE OF CHILDREN WHO HAVE PULMONARY DISEASE OR ARE PREDISPOSED TO IT BY HEREDITY.

BY JOSEPH WILLIAM STICKLER, M.D.,

Orange, N. J.

THE late Dr. Austin Flint said physicians will be employed in the near future to prevent the occurrence of sickness, so far as possible, by instructing people how to remain well. Oliver Wendell Holmes said, "A child's training should begin one hundred years before it is born." Common sense says, be

* Loc. cit.

careful of your child's physical condition, if you would have vigorous manhood a little later on. It is too often the case that weak and poorly-nourished children, whose parents have bestowed upon them a tendency to pulmonary phthisis, are considered unworthy of special thought or attention, because they neither present nor complain of any marked or positive group of symptoms. These unfortunates are, as a rule, spoken of as tender plants that will some time, no one knows just how, gain strength and tone, and do well enough. As a fact, we know they do not, many of them, ever reach a healthy adult life. The various exposures and trying experiences of early life quickly or insidiously develop into pronounced lesions what appeared to be quite harmless weaknesses, and young manhood or womanhood, if reached at all, is a burlesque imitation of what it ought to be. There are many children born of parents who are not only phthisical, but themselves the offspring of consumptive parentage. What can we expect of such children as far as their physical life is concerned? No doubt many of them may be saved if judiciously treated; but a certain percentage of the number will die, no matter what may be done for them. That we are culpably negligent and careless with reference to the management of these unfortunates as a class, there is no doubt. We are too much inclined to regard a child as worthy of special care and thought, only when he is suffering from some form of acute disease like the eruptive fevers, or inflammatory lesions, such as pneumonia or meningitis. Let us open our eyes to the real state of affairs and act accordingly.

To this end we will devote a little attention to the peculiarities of the infant structure and constitution.

The infant at birth possesses the same organs as the adult, although they have a different anatomical structure and are imperfect in their development. Notwithstanding this fact, the same destructive and constructive processes are going on. The tissues are very soft and vascular, and they contain a large amount of fluid. The glandular, lymphatic, and capillary systems are in the ascendant. The skin and mucous membranes are delicately organized and very sensitive. The brain is vascular and large, although it is very soft. The nervous excitability is decidedly marked. The skin is very sensitive,

delicate, and vascular. The stomach is small and somewhat like the large intestine in form, the lesser curvature being slightly arched, while the larger curvature is scarcely apparent. The intestines are relatively smaller and shorter than in the adult, and their peristaltic movements more active. The mucous membrane of the entire alimentary canal is thick, soft, vascular, and covered with mucus. It is also very sensitive. The salivary glands, the pancreas, the lacteals, and the mesenteric glands are highly developed. The kidneys are large, the spleen small. The respiratory organs as soon as they are permeated by air are light and vascular in structure, and of a deep red color. Whenever it happens that respiration is established with considerable difficulty, portions of the lungs may remain solid or in a condition of atelectasis. The respirations are quick, but become slower as the infant grows into childhood. The volume of the heart is proportionately large, its walls are softer and paler than in the adult, and of nearly equal thickness. The larynx is small, but increases in size as age advances.

A consideration of the above leads us to the conclusion that during infancy and childhood there must exist a predisposition to disease, and that when disease attacks the tissues, severe impressions are made. Organic changes are easily wrought, and complications are of frequent occurrence. The vascularity of the various tissues, and the activity of the vital powers, incline the child to inflammatory disorders of a severe type, and the susceptibility of the nervous system causes the local lesion to be severely felt. The mucous membrane of the respiratory organs is easily affected by morbid impressions, hence is often the seat of disease. It is also true that diseases of the skin, digestive organs, and respiratory apparatus, reciprocally produce each other. It is often true that inflammatory affections of the fauces and larynx extend some distance into the œsophagus. The mucous membrane of the larynx, trachea, and bronchial tubes is likely to be attacked by acute inflammatory lesions, such as laryngitis, tracheitis, bronchitis, pneumonia, and croup. Of the chronic disorders, asthma and chronic bronchitis are not so very infrequent. The acute inflammatory diseases of the respiratory organs in childhood are usually attended

with more fever than is experienced in adult life, and it often assumes a remittent type.

On account of the marked development of the capillary system, and the tendency to hyperæmia and irritation of the respiratory mucous membrane, there is liability to hemorrhage from the nostrils and lungs.

Pulmonary tuberculosis is of quite common occurrence during childhood.

We have now come to a point where we may briefly consider a few of the salient points of some of the more important and common pulmonary diseases of childhood, and then, having drawn attention to a few practical points in connection therewith, we shall have finished.

In the management of bronchitis, a very common malady in childhood, there are two facts to bear in mind, namely, that it is likely to be converted into a broncho-pneumonia by an extension of the inflammation into the air-vesicles, and that the large accumulation of mucus in the tubes may cause pulmonary collapse. As the liability to the latter result is great in nursing children and in such as are less than five years old, every precaution must be observed to prevent its occurrence.

Secondary bronchitis in enfeebled children, following measles, whooping-cough, laryngitis, and other diseases, is usually severe and needs special attention, as resolution of the inflammation is difficult to bring about and is apt to terminate in pneumonia. Capillary bronchitis is also likely to follow or accompany inflammation of the large tubes, and as the minute bronchial tubes are very small under the age of three years, the danger is apparent. Exceptionally a fibrinous exudate forms a delicate coating in the bronchial tubes at various points. This condition increases the dyspnoea, but as the exudate may be easily gotten rid of by coughing it is not to be dreaded like the firm and continuous membrane which forms a mould of the tubes and is not easily detached. As a rule, if a child with severe bronchitis recover, the inflammation of the mucous membrane quickly abates. There are instances, however, in which a complete restoration to a normal state is slow, even if there be no pneumonia or atelectasis. Should a lobule lose

its function, due to obstruction, hyperæmia with or without collapse occurs, and its cells and nuclei begin to undergo a fatty degeneration. These elements become opaque, slightly enlarged, and granular.

In the treatment of bronchitis avoid agents which actively depress, and use sustaining measures. Derivation to the surface made early in the disease, and repeated if necessary, is good. During convalescence and in secondary bronchitis, no matter what the age, the diet should be very nutritious, if the patients be feeble.

Children who have been in better physical condition should have light farinaceous food. If a lingering cough remain, and the child's general condition be below par, a generous diet is called for: usually some form of fat is helpful; cod-liver oil, plain or in the form of an emulsion, agrees as a rule. If the patient lives in a low or malarial country, evening and night air should be avoided. Exercise in the open air during the sunny hours is absolutely essential. If the convalescence be at all tardy, and the locality in which the child lives be an unhealthful one, a change of climate will be of great benefit. Even if the home of a patient be in a good locality, a change of air may be just as necessary as if the home were objectionable from a health stand-point. In the winter months a southern trip for a northerner, or during the summer months a sea-side visit for an inlander, will often hasten and complete recovery from an obstinate attack of bronchitis, when drugs fail most signally. Such change means, as a rule, a quickening of vital functions, and an improved appetite, hence a gain in weight and flesh and great improvement of cough or its complete disappearance. Carefully protect the body by the use of suitable clothing, care being taken to refrain from changing under-flannel with every change of temperature. Winter flannel should be worn, no matter whether the child likes it or not, till the settled weather of spring comes. I am satisfied that much harm obtains as a result of injudicious dressing of children who are recovering from bronchitis.

Pulmonary phthisis in children is a most insidious disease, hence very often proves fatal, because of not being recognized till so far advanced as to be incurable. The child at first

appears to be out of health; it is languid, has no appetite, loses strength and flesh, and may complain of slight pains about the chest. A dry cough of moderate severity comes on. There is never any expectoration, as the child swallows what adults would spit up. There is seldom hæmoptysis, and diarrhoea is very uncommon till late in the disease. Often there are no exhaustive night-sweats. As the disease advances the languor increases, the skin becomes hot and dry, particularly at night, and very often an attack of bronchitis develops. The respirations quicken and are accompanied with a wheezing sound; the child becomes thin; the skin wrinkles and the face has the appearance of old age. When there is a bronchial phthisis there will be a liability to repeated attacks of catarrh and the breathing will be oppressed.

Should the bronchial glands suppurate and involve a blood-vessel there will be hemorrhage. As a final result of this form of phthisis, the child will reach a state of extreme weakness and marasmus.

Any form of phthisis in children may be mistaken for remittent fever in the early stages, but if due attention be paid to the physical signs, a mistake need not be made, as a rule. This disease often runs a rapid course in children, three to seven months, or it may be protracted for three or four years.

As death is the natural result of phthisis in the child, even though the conditions for recovery be the most favorable, it naturally follows that those who inherit a marked tubercular diathesis and live in damp and poorly ventilated homes, are almost certain of dying. Hence, how necessary it is to place the sufferers from this disease under as favorable circumstances as possible.

Strumous children should have anti-strumous remedies for the prophylactic and curative treatment of tuberculosis. Such patients should be most carefully watched, and such measures adopted as will be likely to invigorate the system. If the mother be a member of a phthisical family, she ought not to nurse her child. Children who are old enough to eat ordinary food should have plain and nutritious diet. Alcoholic stimulants should be given if the health fails rapidly.

Should the child have a broncho-pneumonia, the utmost

care will be necessary in order to prevent the changes which sometimes occur,—namely, the conversion of the interstitial tissue, surrounding the alveoli into sclerotic tissue, the dilatation of the smallest bronchi which pass through the infiltrated parenchyma, the formation of small pulmonary abscesses, and a cheesy degeneration of the infiltration throughout the lungs. Fibrinous pneumonia, although it usually runs a favorable course in robust children, if uncomplicated, must be sedulously watched if it occur in strumous and weak children, for it may pass into a chronic condition, and when this is the case, recovery is rare. Thus it is manifestly true that no matter what the disease may be, with which we are dealing, so long as its seat be in the lungs of children, who are prone to pulmonary lesions, we must be constantly on our guard lest we allow the already weak organs to become permanently crippled, and be the means of carrying into an early grave a person who ought to live long and happily. It is unquestionably true that many a feeble child might be made to develop into a sound manhood if proper care were taken to guide it safely through the exposures and physical vicissitudes of early life. Crooked backs and drooping shoulders should be straightened. Ample opportunity for out-door exercise should be given. The cool refreshing breezes of the sea-shore or mountains ought to be sought during the hot months if practicable. Good nutritious food, and plenty of it, ought to be insisted upon. School-rooms or nurseries with vitiated air should be avoided. Extremes of temperature and poisonous telluric emanations are to be regarded as great dangers. The body should be well protected by suitable clothing at all seasons of the year, and every precaution taken to prevent the occurrence of even slight colds. In brief, make every child who has a tendency to develop what the laity call “lung trouble” a subject of earnest and careful thought and attention, for in this way many delicate children will be saved, and pulmonary tuberculosis will be less frequently encountered in the adult.

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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(Continued from September number.)

C. THE PHARYNX.

DISEASES OF THE PHARYNX.

1. *Pharyngitis.*

DERIVATION.—*Φάρυγξ*, the pharynx; *ίτης*, denoting inflammation.

DEFINITION.—Any inflammation of the lining mucous membrane and of the submucous tissues of the pharyngeal cavity.

VARIETIES.—1. Acute.
2. Chronic.

(1) ACUTE PHARYNGITIS.

VARIETIES.—

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|----------------------|----------------------|
| 1. Acute catarrhal. | 6. Acute tubercular. |
| 2. Acute follicular. | 7. Erysipelatous. |
| 3. Croupous. | 8. Acute rheumatic. |
| 4. Diphtheritic. | 9. Exanthematous. |
| 5. Acute idiopathic. | |

a. Acute Catarrhal Pharyngitis.

DERIVATION.—*Κατάρρεος*, a running down.

SYNONYMES.—

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|-------------------------------------|---------------------------|--------------|
| 1. Simple acute sore throat. | 11. Angina erythematosa. | |
| 2. Common sore throat. | 12. Angina catarrhalis. | |
| 3. Superficial sore throat. | 13. Angina simplex. | |
| 4. Catarrhal sore throat. | 14. Pharyngite | } (Fr.). |
| 5. Erythematous sore throat. | 15. Angine inflammatoire | |
| 6. Simple inflammatory sore throat. | 16. Angine superficielle | |
| | 17. Angine catarrhale | |
| 7. Pharyngitis. | 18. Halsweh | } (Ger.). |
| 8. Pharyngitis simplex. | 19. Schlundkatarrh | |
| 9. Pharyngitis catarrhalis. | 20. Schlundentzündung | } (Italian). |
| 10. Cynanche pharyngea. | 21. Catarro della faringe | |

DEFINITION.—A simple catarrhal inflammation of the mucous membrane of the pharynx, palate, and tonsils, most frequently occurring in the young, occasionally appearing in epidemic form, running a course of short duration, and usually terminating in resolution, although frequently leaving a predisposition to future attacks.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Former acute attacks.
- (2) Ill-nourishment.
- (3) Insufficient clothing.
- (4) Bad ventilation.
- (5) Diatheses.
 - a. Scrofulous.
 - b. Rheumatic.
- (6) Season, spring and autumn.

2. *Exciting causes.*

- (1) Undue exposure to cold.
- (2) Changes in temperature.
- (3) Traumatism.
 - a. Swallowing of irritating poisons.
 - b. Swallowing of hot fluids.

PATHOLOGY.—

- | | | |
|-----------------|---|---|
| 1. Macroscopic. | { | (1) <i>Pharynx.</i> a. Mucous membrane congested uniformly or in patches, swollen, covered with abundant viscid mucus; color, pink to scarlet.
b. Glandular structure swollen.
c. Uvula relaxed, œdematous (<i>severe cases</i>). |
| 2. Microscopic. | { | (1) <i>Mucous membrane.</i> a. Blood-vessels dilated.
b. Inflammatory deposits in submucous tissues. |

SYMPTOMS.—

- | | | |
|-------------|---|--|
| 1. Local. | { | (1) <i>Oro-pharynx.</i> a. Voice nasal, husky, thick; articulation imperfect.
b. Tongue coated.
c. Sense of taste slightly impaired.
d. Respiration, slight tendency to become oral.
e. Breath foul.
f. Deglutition painful, difficult.
g. Sensation of dryness and stiffness.
h. Pain, itching, stinging, severe, lancinating.
i. Hawking frequent.
j. Cough tickling, dry; <i>later</i> , moist.
k. Expectoration, <i>at first</i> mucous, slight, tenacious; <i>later</i> , muco-purulent or purulent, blood-streaked (<i>occasional</i>).
l. Cervical glands swollen.
(2) <i>Nose.</i> a. Anosmia, partial.
(3) <i>Ears.</i> a. Hearing slightly impaired.
b. Tickling sensation in ear. |
| 2. General. | { | (1) Chill, initial symptom.
(2) Fever slight, 101° to 102° F.; heat of skin.
(3) Headache constant.
(4) Anorexia partial.
(5) Bowels constipated, usually.
(6) Urine febrile, high-colored, loaded with urates.
(7) Pulse slightly accelerated. |

DURATION.—Short: six to seven days.

DIAGNOSIS.—1. From acute superficial tonsillitis.

Acute Catarrhal Pharyngitis.

1. Inflammation general over the mucous membrane of the pharynx.
2. Tonsils not enlarged, normal in appearance.
3. Constitutional symptoms comparatively slight.
4. Swelling of cervical glands slight.
5. Breathing as a rule not affected.
6. Cough frequent, dry, tickling.
7. Expectoration muco-purulent or purulent, occasionally blood-streaked.
8. No nausea nor vomiting as a rule.
9. Pulse but slightly accelerated.
10. No delirium.

2. From acute follicular pharyngitis (*vide*).

3. From acute rheumatic pharyngitis (*vide*).

PROGNOSIS.—Good.

TREATMENT.—1. *Prophylactic.*

(1) Avoidance of sudden changes of temperature.

(2) Daily cold, sponge bathing.

2. *Of the attack.*

(1) *Local.*

a. Sucking of ice.

b. Hot inhalations.

c. Compressor cold or hot.

d. Use of lozenges.

(a) *Guaiaicum.*

e. Scarification (*in excessive œdema of uvula*).

f. Hot foot-baths.

(2) *Constitutional.*

(1) *For pain.*

(a) *Opiates*, small doses.

(2) *For the fever.*

(a) *Antipyrin.*

(b) *Antifebrin.*

(c) *Aconite* one quarter to one drop doses.

(3) *For the bowels.*

(a) *Saline laxatives.*

(3) *Convalescence.*

(1) *Tonics.*

(a) *Quinine.*

(b) *Arsenic.*

(c) *Nux vomica.*

Acute Superficial Tonsillitis.

1. Inflammation confined especially to the tonsils.
2. Tonsils swollen, dry, glistening, covered with slightly adherent grayish exudation.
3. Constitutional symptoms comparatively severe.
4. Swelling of cervical glands quite prominent.
5. Respiration rapid.
6. Cough rare.
7. Expectoration mucous, viscid, stringy.
8. Nausea and vomiting marked at the onset.
9. Pulse rapid, 110 to 130.
10. Occasional delirium.

DIET.—Fluid, semifluid at regular intervals: fruits, refreshing drinks.

b. *Acute Follicular Pharyngitis.*

DERIVATION.—*Folliculus*, a little bag.

SYNONYMES.—1. Acute sore throat.

2. Herpetic pharyngitis (*Morell Mackenzie*).

DEFINITION.—An acute inflammation of the pharyngeal mucous membrane characterized by swelling and redness of the follicles, and frequently associated with the formation of small vesicles on the pharynx, palate, and faucial pillars closely resembling an herpetic eruption.

VARIETIES.—1. Simple.

2. Pustular.

ETIOLOGY.—1. *Predisposing causes.*

(1) Improper use of the voice.

(2) Poor ventilation.

(3) Diathesis.

a. Rheumatic.

2. *Exciting causes.*

(1) Exposure to cold.

(2) Inhalation of irritating substances.

a. Dust.

b. Smoke.

c. Gas.

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| | { | (1) <i>Oro-pharynx.</i> |
| | | a. Mucous membrane reddened, inflamed (<i>simple variety</i>); covered with blisters, pustules, and small, round ulcers (<i>pustular variety</i>). |
| 1. <i>Macroscopic.</i> | { | b. Follicles swollen, red, surrounded by circumscribed zones of inflammation. |
| | | <i>Size.</i> Three to five millimetres in diameter; two millimetres in height. |
| | | <i>Shape.</i> Ovoid, hemispherical. |
| | | <i>Surface.</i> Smooth, glistening. |

SYMPTOMS.—

- | | | | |
|--------------------|---|--|--|
| | { | (1) <i>Oro-pharynx.</i> | a. Voice husky. |
| | | | b. Sensation of dryness and pricking. |
| 1. <i>Local.</i> | { | | c. Hawking frequent. |
| | | | d. Cough short, dry. |
| | | | e. Expectoration muco-purulent, thick. |
| | | | f. Relapses frequent. |
| | | | g. Deglutition slightly painful. |
| 2. <i>General.</i> | { | (1) Malaise general. | |
| | | (2) Fever high, 102° to 103° F.; skin hot. | |
| | | (3) Pulse rapid. | |

DURATION.—Short: two to seven days.

DIAGNOSIS.—1. From acute catarrhal pharyngitis.

Acute Follicular Pharyngitis.

1. Always sporadic.
2. Great prominence of the follicles of the pharynx.
3. Follicles surrounded by the characteristic circumscribed zones of congestion and inflammation.
4. Ulcerations frequently present on the mucous membrane of the oro-pharynx.
5. Constitutional involvement comparatively severe.
6. Fever high, 102° to 103° F.
7. Pulse rapid.
8. Relapses frequent.

Acute Catarrhal Pharyngitis.

1. Occasionally epidemic.
2. No enlargement or prominence of the follicles of the pharynx.
3. Congestion of the mucous membrane of the pharynx usually uniform.
4. Ulcerations rarely present on the mucous membrane of the oro-pharynx.
5. Constitutional involvement comparatively slight.
6. Fever slight, 101° to 102° F.
7. Pulse but slightly accelerated.
8. No relapses.

2. From croupous pharyngitis.

Acute Follicular Pharyngitis.

1. Invasion abrupt.
2. Occurs in the strong as well as in the weak.
3. Characterized by great prominence of the follicles of the pharynx.
4. No formation of false membrane.
5. No herpetic patches on the mucous membrane of the oro-pharynx.
6. Constitutional involvement comparatively slight.
7. Deglutition slightly painful.
8. Duration, two to seven days.
9. Relapses frequent.
10. Not followed by any grave results.

Croupous Pharyngitis.

1. Invasion gradual.
2. Occurs most frequently in delicate children.
3. Follicles not enlarged.
4. Characteristic formation of yellowish-white fibrinous exudate.
5. Large herpetic patches on the mucous membrane of the oro-pharynx.
6. Constitutional involvement severe.
7. Deglutition very painful.
8. Duration, five to fourteen days.
9. No relapses as a rule.
10. Occasionally attended with grave sequences.

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) *Astringent solution (in spray).*

a. Tannic acid.

2. *Constitutional.* (1) *Antirheumatic remedies.*

a. Salicylates.

b. Salicylic acid.

c. Alkaline treatment.

(2) Bitter tonics.

FORMULA.—Astringent spray (*Ingals*).

R Morph. sulph., gr. v;
Acid. carbol.,
Acid. tannici, āā gr. xxx;
Glycerin,
Aquæ, āā ʒiv. M.

S.—Use in atomizer once daily.

c. Croupous Pharyngitis.

DERIVATION.—*Heopan* (*Anglo-Saxon*) (*Billings*).

SYNONYMES.—

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Membranous sore throat. 2. Herpetic sore throat. 3. Aphthous sore throat. 4. Membranous pharyngitis. | <ol style="list-style-type: none"> 5. Confluent herpes of the throat
(<i>Morell Mackenzie</i>). 6. Drain-throat (<i>S. Solis-Cohen</i>). |
|--|--|

DEFINITION.—An acute sthenic, non-contagious inflammation of the mucous membrane of the oro-pharynx most commonly occurring in the fall and spring of the year, and in children of a delicate constitution, usually sporadic in nature and rarely attacking the same individual twice, and characterized by the formation of herpetic patches or blisters upon the mucous membrane, which eventually become covered with a fibrinous exudate that unites to form a pellicle or false membrane.

ETIOLOGY.—1. *Predisposing causes.*

(1) Season, fall and spring.

(2) Climate, cold and damp.

2. *Exciting causes.*

(1) Exposure to cold.

(2) Exposure to septic influences.

a. Contagium of scarlatina.

b. Contagium of diphtheria.

(3) Respiration of impure air.

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PATHOLOGY.—

- | | | | |
|------------------------|---|--|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Oro-pharynx.</i> | |
| | | a. Mucous membrane congested, swollen, formation of ephemeral vesicles and, later, of ulcerations and patches.
Size. Pin's head (<i>vesicles</i>).
Site. a. Palate and uvula (<i>usual</i>).
b. Pharynx (<i>frequent</i>).
c. Tongue
d. Cheeks } (<i>occasional</i>).
e. Tonsils } | |
| | | b. Formation of fibrinous exudate of yellowish-white color, thin, friable, non-adherent. | |

SYMPTOMS.—

- | | | | |
|------------------------------|---|---------------------|---|
| 1. <i>Prodromal Stage.</i> | { | (1) <i>Local.</i> | { a. Throat slightly sore.
b. Tendency to swallow marked. |
| | | (2) <i>General.</i> | { a. Malaise marked.
b. Headache slight.
c. Anorexia partial. |
| 2. <i>Stage of Invasion.</i> | { | (1) <i>Local.</i> | { a. <i>Oro-pharynx.</i>
(a) Tongue furred.
(b) Lips contain herpetic patches.
(c) Secretions of mouth viscid.
(d) Breath foul.
(e) Formation of ephemeral vesicles, three or four crops.
(f) Pain in throat, smarting.
(g) Deglutition very painful.
(h) Voice husky, aphonia (<i>frequent</i>). |
| | | (2) <i>General.</i> | { a. Chill decided (<i>initiatory</i>).
b. Fever high, 102° to 104° F.; skin hot.
c. Respiration accelerated, obstructed partially.
d. Headache severe.
e. Urine febrile, high-colored, containing urates, rarely albuminous.
f. Anorexia complete.
g. Pulse rapid, strong, hard (<i>usual</i>).
h. Bowels normal as a rule; diarrhœa (<i>occasional</i>). |

COMPLICATIONS.—1. Specific sore throat
2. Tubercular sore throat } (*occasional*).

SEQUELÆ.—Slight, as a rule, or none.

CAUSE OF DEATH.—Suffocation.

DURATION.—Short: five to fourteen days.

DIAGNOSIS.—1. From diphtheritic pharyngitis.

Croupous Pharyngitis.

1. Usually sporadic.
2. Invasion gradual.
3. Non-specific in origin.
4. Rarely attacks adults, and seldom occurs in the same individual more than once.
5. Non-contagious.
6. Strongly sthenic in nature.

Diphtheritic Pharyngitis.

1. Usually epidemic.
2. Invasion more abrupt.
3. Specific in origin.
4. Often attacks adults, and frequently occurs in the same individual more than once.
5. Virulently contagious.
6. Attended with great asthenia.

- | | |
|--|---|
| <p>7. Membranous formation yellowish white, thin, easily torn, readily detached from subjacent tissues.</p> <p>8. Small vesicles and ulcerations present among the membranous patches.</p> <p>9. Membrane when removed shows no tendency to reform.</p> <p>10. Membranous deposit limited to the throat.</p> <p>11. No odor about the body.</p> <p>12. Pulse strong and hard, though rapid.</p> <p>13. Urine rarely albuminous.</p> <p>14. Usually ends in recovery.</p> <p>15. Kills only by mechanical means,—obstruction to respiration.</p> <p>16. Sequelæ slight or absent.</p> | <p>7. Membranous formation grayish, dense, involving the whole thickness of the mucous membrane, tough, closely adherent, attended with bleeding on removal.</p> <p>8. No vesicles or ulcerations present in the membranous patches.</p> <p>9. Membrane, if removed, speedily reforms.</p> <p>10. Membranous deposits upon any existing abrasion of the surface of the body.</p> <p>11. Always accompanied by a peculiar characteristic odor of the body.</p> <p>12. Pulse weak and rapid.</p> <p>13. Urine almost always albuminous.</p> <p>14. Frequently proves rapidly fatal.</p> <p>15. Kills frequently by intensity of systematic poisoning.</p> <p>16. Followed by paralysis and other grave sequences.</p> |
|--|---|

2. From acute follicular pharyngitis (*vide*).

PROGNOSIS.—Anxious.

- TREATMENT.—1. *Local.* (1) *Antiseptic and detergent washes.*
 a. Potassium permanganate, gr. x to ℥i water.
 b. Solution of borax.
- (2) *Anodyne inhalations.*
 a. Hot water impregnated with
 (*a*) Benzoin.
 (*b*) Belladonna.
 (*c*) Lupulin.
- (3) *Astringent and caustic applications.*
 a. Alum.
 b. Silver nitrate, gr. 60 to ℥i water.
 c. Anodyne pigments.
 (*a*) Carbolic acid (*vide formulæ in Acute Follicular Pharyngitis*).
2. *Constitutional.* (1) *Anodynes.*
 a. Opiates.
 b. Potassium bromide.
- (2) *For the bowels.*
 a. Saline laxatives.
- (3) *During convalescence.*
 a. Tonics.
 (*a*) Quinine.
 (*b*) Arsenic.
 (*c*) Strychnine.

d. Diphtheritic Pharyngitis.

DERIVATION.—*Διφθέρη*, leather.

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DEFINITION.—An acute, specific, contagious inflammation of the mucous membrane of the pharynx—a local manifestation of a general disease—due to the deposit thereon of the specific germ of diphtheria, usually appearing in an endemic or epidemic form, and capable of attacking the same individual more than once, and characterized by the formation of a membranous exudate upon the fauces, tonsils, soft palate, and pharynx, associated with symptoms of grave systemic poisoning and frequently resulting in death.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Age, under the tenth year.
- (2) Season, spring and winter.

2. *Exciting cause.*

- (1) Some specific germ (*Klebs-Löffler bacillus*. *Short thick rods with rounded extremities, frequently of a granular appearance, immobile, occurring in great numbers, and ordinarily found on the free surface of the false membrane. Colored blue by methyl violet*).

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| 1. <i>Macroscopic.</i> | { | <ol style="list-style-type: none"> (1) <i>Pharynx and soft palate.</i> <ol style="list-style-type: none"> a. Mucous membrane reddened, congested, dusky, with spots of exudation, white or ash-colored at first; later, dirty, brownish, or blackish. b. False membrane dirty, grayish or blackish in color, dense, tough, adherent, bleeding on removal, covered with spots of coagulation necrosis. (2) <i>Uvula.</i> Congested, elongated. (3) <i>Fauces.</i> Reddened, covered with patches of exudation. (4) <i>Tonsils.</i> Slightly enlarged, reddened, covered with diphtheritic patches. (5) <i>Nose.</i> Mucous membrane reddened, inflamed, covered with deposits of membrane (occasional). |
| 2. <i>Microscopic.</i> | { | <ol style="list-style-type: none"> (1) <i>Oro-pharynx.</i> <ol style="list-style-type: none"> a. <i>Mucous membrane.</i> <ol style="list-style-type: none"> (a) Injection of capillaries. (b) Rapid cell proliferation. b. <i>False membrane</i>, composed of— <ol style="list-style-type: none"> (a) Basement of fibrin. (b) Blood-corpuscles, colored and colorless. (c) Epithelial cells, shrivelled, granular debris, markedly necrosed. |

INCUBATIVE PERIOD.—Two to eight days.

SYMPTOMS.—

- | | | |
|------------------|---|---|
| 1. <i>Local.</i> | { | <ol style="list-style-type: none"> (1) <i>Oro-pharynx.</i> <ol style="list-style-type: none"> a. Voice rough, hoarse, aphonia (occasional). b. Respiration accelerated, difficult, labored, attacks of dyspnoea. c. Deglutition uncomfortable, difficult; regurgitation of food through nose (occasional). d. Cough frequent, harassing; later, weak. e. Breath foul. f. Expectoration scanty, containing fragments of membrane. g. Tongue coated. h. Cervical glands greatly enlarged. (2) <i>Eyes.</i> Dull, suffused. |
|------------------|---|---|

2. *General* {
- (1) Malaise general; languor marked.
 - (2) Headache severe.
 - (3) Chill or chilly sensations (*both rare*).
 - (4) Fever slight, asthenic, 101° to 103° F.
 - (5) Pulse rapid, feeble, full.
 - (6) Prostration profound.
 - (7) Anorexia complete.
 - (8) Diarrhœa frequent, early.
 - (9) Vomiting frequent.
 - (10) Urine soon albuminous.
 - (11) Nervous symptoms.
 - a. Delirium mild to severe.
 - Stupor } (*occasional*).
 - Coma }
 - (12) Odor of body peculiar, characteristic.

DURATION.—Seven to twelve days.

SEQUELÆ.—1. *Local.* Paralysis of the pharynx.
 2. *Renal.* Parenchymatous nephritis.
 3. *Cardiac.* Fatty degeneration of the heart.

CAUSES OF DEATH.—1. Heart-clot.
 2. Paralysis of the heart.
 3. Uræmia.
 4. Intense systemic poisoning.
 5. Suffocation.

DIAGNOSIS.—1. From acute catarrhal tonsillitis.

Diphtheritic Pharyngitis.

1. Invasion gradual with well-marked prodromal stage.
2. Swelling and redness involving the soft palate and pharynx as well as the tonsils.
3. Formation of the characteristic false membrane in the pharynx.
4. Eyes dull, suffused.
5. Prostration great.
6. Bowels frequently loose.
7. Urine albuminous.
8. Fever slight, asthenic.
9. Frequently results in death.
10. Never followed by suppuration of the tonsil.
11. Frequently followed by paralysis.

Acute Catarrhal Tonsillitis.

1. Invasion acute, with no pronounced prodromal stage.
2. Swelling and redness confined to the tonsils.
3. Tonsils irregularly covered with a slight exudation.
4. Eyes bright.
5. Prostration slight.
6. Bowels constipated as a rule.
7. Urine non-albuminous.
8. Fever sharp, sthenic.
9. Never results fatally.
10. Frequently followed by suppuration of the tonsil.
11. Never followed by paralysis.

2. From croupous pharyngitis (*vide*).
3. From rubeolar pharyngitis (*vide*).
4. From scarlatinal pharyngitis (*vide*).
5. From acute follicular tonsillitis (*vide*).
6. From herpetic tonsillitis (*vide*).

PROGNOSIS.—Anxious.

TREATMENT.—1. *Local.* (1) *Gargles and sprays of—*
 a. Sublimed sulphur, every two hours (*Stanley*).
 b. Chlorine water (*Gælet*).
 c. Oil of eucalyptus.
 d. Lime-water.
 e. Lactic acid.
 f. Oxide of lime.

- g. Carbolic acid.
- h. Extract of pancreatin.
- i. The metho-carbolates (*Sansom*).
- j. Bichloride of mercury, 1-4000.
- k. Solution of borax.
- l. Boric acid.
- m. Hydrogen peroxide.
- (2) *Inhalations.*
 - a. Fumes of burning sulphur (*Stanley*).
- (3) *Insufflations.*
 - a. Powdered sulphur, ʒss b. d. (*Stanley*).
 - b. Powdered iodoform.
- (4) *Astringent applications.*
 - a. Tincture of chloride of iron.
 - b. Solution of perchloride of iron.
 - c. Solution of chloride of ammonium (*Lloyd*).
 - d. Monsell's solution (*Whittaker*).
 - e. Acid sublimate solution (*Laplace's*).
- (5) *Painting of neck.*
 - a. Iodine.
- (6) *Effervescing lozenges.*
 - a. Salicylic acid.
 - b. Carbolic acid.
- (7) *Sucking of ice.*
- 2. *Constitutional.* (1) *Specific Treatment.*
 - a. Hydrarg. bichloride, $\frac{1}{10}$ – $\frac{1}{20}$ grain every two hours (for child of four years).
 - b. Calomel, gr. $\frac{1}{8}$ – $\frac{1}{4}$ every hour or two.
- (2) *Rational treatment.*
 - a. Tincture of chloride of iron, ʒi daily.
 - b. Chloride of ammonium, grs. 2–4 thrice daily.
 - c. Sulphite of sodium, grs. 5–10 every three to four hours.
 - d. Chlorate of potassium (*with care*).
 - e. Mineral acids.
 - f. Digitalis, tincture (*small doses*).
 - g. Strychnine.
 - h. Quinine.
 - i. *Febrifuges.*
 - (a) Antipyrin.
 - (b) Antifebrin.
 - j. Stimulants (*as needed*).
 - a. Wine whey.
 - b. Weak milk punch.
 - c. Champagne.
 - k. Hydrogen peroxide.
- 3. *Hygienic.* (1) Strict isolation.
(2) Rest in bed.
(8) Nutritious food.
- 4. *Surgical.* Tracheotomy.

FORMULÆ.—1. Chlorine water (*Gœzet*).

R Potas. chlorat., ℥ii;
Acid. sulphur., ℥xx. M.
Put into well-stoppered eight-ounce vial.
When decomposition has taken place add,
through a glass funnel, glycerini, ℥ii, to ab-
sorb the chlorine; then add aquæ, q. s. to
fill the vial.

S.—Use as a gargle.

2. Chloride of ammonium solution (*Lloyd*).

R Tinct. ferri chlorid.,
Ammon. chlorid., āā ℥ss;
Syr. toltan, ℥i. M.
S.—One teaspoonful every two hours inter-
nally, and apply to throat with soft camel's-
hair throat-brush.

e. Acute Idiopathic Pharyngitis.

SYNONYMES.—1. Retro-pharyngeal abscess.
2. Retro-œsophageal abscess.
3. Pharyngeal abscess.
4. Abscès rétro-pharyngien (*French*).
5. Abscessus post-pharyngeus.
6. Ascesso retro-faringeo (*Italian*).

DEFINITION.—Essentially a disease of childhood, though occasionally occurring in adults, consisting in a deep-seated inflammation of the pharynx, which is accompanied and characterized by an accumulation of pus in the submucous tissues resulting in the formation of an abscess.

VARIETIES.—1. Idiopathic (*common*).

2. Secondary (*rare*).

ETIOLOGY.—1. *Predisposing causes.*

- (1) Age, childhood.
- (2) Sex, male.
- (3) Diathesis.
 - a. Scrofulous.
 - b. Syphilitic.
- (4) Various diseases.
 - a. Scarlatina.
 - b. Acute pharyngitis.
 - c. Tonsillitis.
 - d. Erysipelas.
 - e. Caries of vertebræ (*syphilitic*).

2. *Exciting causes.*

- (1) Exposure to cold.
- (2) Exposure to extreme heat.
- (3) Traumatism.
 - a. Swallowing of pins, bones, etc.
- (4) Forced deglutition in œsophageal stricture (*Ingals*).

PATHOLOGY.—

1. Macroscopic.	{	(1) <i>Retro-pharyngeal wall.</i>			
		Swollen, tense, rounded, semi-elastic, doughy, fluctuating; color, dusky-red. Formation of yellow abscess point (<i>late stage</i>).			
		Position.			
		<table border="0" style="margin-left: 20px;"> <tr> <td>a. Oro-pharynx</td> <td rowspan="3" style="font-size: 3em; vertical-align: middle; padding: 0 10px;">}</td> <td rowspan="3" style="vertical-align: middle;">(<i>median line; one or other side</i>).</td> </tr> <tr> <td>b. Naso-pharynx</td> </tr> <tr> <td>c. Laryngo-pharynx</td> </tr> </table>	a. Oro-pharynx	}	(<i>median line; one or other side</i>).
a. Oro-pharynx	}	(<i>median line; one or other side</i>).			
b. Naso-pharynx					
c. Laryngo-pharynx					

SYMPTOMS.—

- | | | |
|-------------|---|--|
| | { | (1) <i>Oro-pharynx.</i> |
| | | a. Voice hoarse, sonorous, nasal; shrill, piping (if abscess is posterior to œsophagus); aphonia (frequent). |
| | | b. Respiration, snoring (during sleep), oral (tumor in naso-pharynx), stertorous (tumor in laryngo-pharynx); dyspnœa (frequent), suffocative spasms. |
| | | c. Cough occasional. |
| | | d. Pain deep-seated, increased by pressure. |
| 1. Local. | { | e. Deglutition difficult, choking; dysphagia (occasional), complete aphagia (rare); partial regurgitation of food (in retro-œsophageal form). |
| | | d. Pharyngeal muscles paralyzed (occasional). |
| | | (2) <i>Head.</i> Bent backward (frequent). |
| | | (3) <i>Lower jaw.</i> Immobile. |
| | { | (4) <i>Neck.</i> Stiff, tumefied at angle of jaw and in front of sterno-cleido; great prominence of larynx (occasional). |
| | | (1) Chill (occasional), chilly sensations (usual). |
| | | (2) Fever slight, skin hot. |
| 2. General. | { | (3) Headache frequent. |
| | | (4) Pulse accelerated, weak, compressible. |
| | | (5) Convulsions occasional. |

DURATION.—Three to ten days.

CAUSES OF DEATH.—1. Suffocation.

- (1) From pressure on larynx or œsophagus.
- (2) From bursting of abscess (*mechanical asphyxia*).
2. Perforation of œsophagus.
3. Perforation into pleural cavities.
4. Perforation of internal carotid artery (*Hæzle, Leishman*).
5. Starvation.
6. Œdema of the larynx (*Schmitz*).

DIAGNOSIS.—1. From œdema of the larynx.

Acute Idiopathic Pharyngitis.

1. Invasion gradual.
2. Usually develops spontaneously.
3. Obstruction to respiration occurs both in inspiration and expiration.
4. Examination reveals swelling and redness of the posterior pharyngeal wall.
5. Color of the swelling dusky-red.
6. Elevating the larynx relieves the dyspnœa.
7. Duration three to ten days.
8. Rarely fatal.

Œdema of the Larynx.

1. Invasion acute.
2. Usually develops in the course of another disease, or as a result of traumatism.
3. Obstruction to breathing principally in inspiration.
4. Examination by laryngoscope reveals swelling of the tissues of the larynx.
5. Color of the tumefied larynx pale, whitish.
6. No relief from elevating the larynx.
7. Duration but a few hours.
8. Frequently fatal.

2. From spasmodic laryngitis.

Acute Idiopathic Pharyngitis.

1. Invasion gradual.
2. Occurs at any time during childhood.
3. Not associated with catarrhal symptoms.
4. Neck swollen and stiff.
5. Pressure produces pain.
6. Marked dysphagia.
7. Dyspnoea constant.
8. Cough only occasional, slight.
9. Voice altered but generally not lost.
10. Recovery only after evacuation of pus.
11. Death occasionally results.

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) Sucking of ice (*early stage*).

(2) Evacuation of pus.

a. Head thrown forward.

b. Incision by guarded bistoury in median line.

2. *Constitutional.* (1) *For convulsions.*

a. Potassium bromide, grs. 3–5 every three or four hours.

(2) *Alteratives.*

a. Syrup of iodide of iron.

b. Phosphate of iron.

c. Syrup of the hypophosphates.

d. Cod-liver oil.

(3) *Tonics.*

a. Quinine.

f. *Acute Tubercular Pharyngitis.*

DERIVATION.—*Tuberculum*, a pimple.

SYNONYMES.—

1. Acute tubercular sore throat.
2. Tubercular ulceration of the pharynx.
3. Pharyngeal phthisis.
4. Phthisis pharyngea.
5. Tuberculose miliaire de la gorge (*French*).

6. Miliartuberculose des pharynx (*German*).
7. Tuberculosi miliare della faringe (*Italian*).
8. Tuberculosis of the pharynx.

DEFINITION.—An acute affection of the throat, rare in childhood, characterized by inflammation and ulceration of the pharyngeal mucous membrane due to the deposit thereon of miliary tubercular granulations, running a rapid course, and attended by the constitutional symptoms of tuberculosis.

VARIETIES.—1. Primary (*rare*).

2. Secondary.

ETIOLOGY.—1. *Predisposing causes.*

(1) Age, early adult life.

(2) Chronic inflammation of the pharynx.

Spasmodic Laryngitis.

1. Invasion very acute.
2. Occurs usually during the first and second years.
3. Always associated with pronounced catarrhal symptoms.
4. Neck neither swollen nor stiff.
5. No pain on pressure of neck.
6. No dysphagia.
7. Dyspnoea only occurs at night.
8. Cough constant, ringing, metallic.
9. Voice always lost.
10. Recovery abrupt, spontaneous.
11. Death never results.

2. *Exciting cause.*

- (1) Deposit of bacillus tuberculosis.

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Oro-pharynx.</i> |
| | | <i>a.</i> Mucous membrane inflamed, reddened, dotted with abundant, prominent, small, gray, miliary granulations beneath the epithelium, occurring in patches, with occasional bleeding points; <i>later</i> , formation of ulcers.
<i>(a) Size.</i> Large.
<i>(b) Shape.</i> Irregular, lenticular.
<i>(c) Surface.</i> Shallow, caseous.
<i>(d) Color.</i> Grayish.
<i>(e) Edges.</i> Indistinct, hyperæmic, undermined, not surrounded by areolæ.
<i>(f) Site.</i> <i>a.</i> Palate.
<i>β.</i> Palatine folds.
<i>γ.</i> Pharynx. |
| 2. <i>Microscopic.</i> | { | <i>Pharyngeal mucous membrane.</i> |
| | | <i>a.</i> Gland epithelium degenerated.
<i>b.</i> Infiltration of tissues with round, nucleated lymph-cells.
<i>c.</i> Deposit of miliary tubercles composed of—
<i>(a)</i> Basement membrane, fine connective tissue.
<i>(b)</i> Connective tissue abundant.
<i>(c)</i> Granulation tissue.
<i>(d)</i> Giant cells (<i>occasional</i>).
<i>(e)</i> Tubercle bacilli. |

SYMPTOMS.—

- | | | | |
|--------------------|---|---|--|
| 1. <i>Local.</i> | { | (1) <i>Oro-pharynx.</i> | <i>a.</i> Voice husky, aphonia (<i>late stage</i>).
<i>b.</i> Respiration rapid, attacks of great dyspnœa (<i>frequent</i>).
<i>c.</i> Tongue whitish.
<i>d.</i> Deglutition painful; dysphagia (<i>severe</i>).
<i>e.</i> Pain intense, sharp, lancinating, radiating to the ear; great soreness of throat.
<i>f.</i> Cough frequent, annoying, hacking.
<i>g.</i> Expectoration scanty, mucous or muco-purulent, blood-streaked (<i>frequent</i>).
<i>h.</i> Formation of granulations and, <i>later</i> , of ulcers; rapid spread. |
| | | | |
| 2. <i>General.</i> | { | (1) Emaciation rapid. | |
| | | (2) Loss of strength progressive. | |
| | | (3) Fever persistent, high, 102° to 104° or even 107° F., irregular (<i>Frænkel</i>). | |
| | | (4) Pulse rapid, weak. | |
| | | (5) Anorexia partial or complete. | |
| | | (6) Bowels loose. | |
| | | (7) Cachexia marked. | |

COMPLICATION.—Tuberculosis of the apex.

DURATION.—Two to six months.

DIAGNOSIS.—1. From scrofulous pharyngitis.

Acute Tubercular Pharyngitis.

1. Rare in childhood.
2. Invasion rather acute.
3. Ulcerative process preceded by the existence of small, gray, bleeding granulations.
4. Ulcerations superficial, with no distinct line of demarcation, rapidly spreading.
5. Discharge scanty, mucous or muco-purulent, bloody.
6. Attended with rapid emaciation and loss of strength.
7. Fever persistent, high.
8. Pain intense, sharp, lancinating.
9. Associated with symptoms of pulmonary disease.
10. Result fatal.

Scrofulous Pharyngitis.

1. Common in childhood.
2. Invasion very insidious.
3. Ulcerations not preceded by granular deposits.
4. Ulcerations deep, with sharply-defined edges, of slow growth.
5. Discharge scanty, muco-purulent, not bloody.
6. Emaciation not rapid; debility marked.
7. Fever absent or slight.
8. Pain slight, often absent.
9. No associated pulmonary trouble.
10. Responds readily to proper treatment.

2. From specific pharyngitis (*vide*).

3. From chronic follicular pharyngitis (*vide*).

PROGNOSIS.—Fatal.

TREATMENT.—1. *Local.* (1) *Insufflations.*

a. Powders of morphine and bismuth (*Ingals*).

b. Powdered iodoform.

(2) *Inhalations of steam impregnated with—*

a. Conium.

b. Belladonna.

c. Opium.

d. Compound tincture of benzoin.

2. *Constitutional.* (1) *Alteratives.*

a. Cod-liver oil.

b. Syrup of iodide of iron.

c. Syrup of the hypophosphites.

d. Iodoform.

(2) *Tonics.*

a. Quinine.

b. Arsenic.

c. Strychnine.

g. Erysipelatous Pharyngitis.

DERIVATION.—*Ἐρυθρός*, red; *πέλλα*, a skin.

SYNONYMES.—1. Erysipelatous sore throat.

2. Erysipelas pharyngei.

3. Angine érysipélateuse (*French*).

4. Erysipelas des Schlundes (*German*).

5. Risipola della faringe (*Italian*).

DEFINITION.—A specific affection of the mucous membrane of the throat, comparatively rare, but occasionally occurring in an endemic or epidemic form, generally associated with and secondary to facial erysipelas, and characterized by an acute inflammation of the mucous membrane of the pharynx and subjacent tissues with a strong tendency to invade the larynx and other contiguous structures.

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VARIETIES.—1. Simple
2. Phlyctenular } (*Cornil*).
3. Gangrenous }

ETIOLOGY.—1. *Predisposing cause.*

(1) Chronic inflammation of the mucous membrane

2. *Exciting cause.*

(1) The streptococcus of erysipelas.

PATHOLOGY.—

	{	(1) <i>Pharynx.</i>	
		a. Mucous membrane smooth, shining, inflamed, edematous; color, deep livid or dusky-red; covered with vesicles.	
1. <i>Macroscopic.</i>		(a) <i>Variety.</i>	a. Serous. β. Purulent. γ. Hemorrhagic.
		(b) <i>Size.</i>	Pin's head to half inch in diameter.
		(c) <i>Color.</i>	a. Yellowish white (<i>usual</i>).
	b. Dark, pultaceous (<i>gangrenous cases</i>).		

SYMPTOMS.—

1. <i>Local.</i>	{	(1) <i>Oro-pharynx.</i>	a. Voice husky.
			b. Respiration accelerated; attacks of dyspnoea slight or great.
			c. Breath foul; gangrenous (<i>severe cases</i>).
			d. Pain severe, stinging.
			e. Jaw stiff.
			f. Sensation of dryness of throat marked.
			g. Dysphagia marked; regurgitation of food (a) through the nose (<i>due to paralysis of palatine muscles</i>); (b) through the mouth (<i>due to paralysis of pharyngeal muscles</i>).
			h. Submaxillary and cervical glands swollen.
			i. Formation of vesicles on mucous membrane.
		2. <i>General.</i>	{	(1) Malaise general.
(2) Prostration great.			
(3) Fever high, asthenic, 104° to 105° F.			
(4) Pulse rapid, weak.			
(5) Gastralgia frequent.			
(6) Nausea great.			
(7) Delirium mild or violent.			
(8) Death frequently results.			

DURATION.—Two to nine days.

CAUSES OF DEATH.—1. Suffocation.

2. Asphyxia.

3. Exhaustion.

DIAGNOSIS.—Plain. By presence of external erysipelas.

PROGNOSIS.—Grave.

MORTALITY.—Fifty per cent.

TREATMENT.—1. *Local.* (1) *Astringent applications.*

a. Silver nitrate, gr. 60 to ʒi water.

(2) *Sedatives.*

- a. Sucking of ice (*early stage*).
 - b. Hot inhalations of opiates
 - c. Hot inhalations of bella-donna
 - d. Insufflation of morphine
- (late stage).

2. *Constitutional.* (1) *Sedatives.*

- a. Potassium bromide.

(2) *Tonics.*

- a. Quinine, large doses.
- b. Tincture of ferric chloride, large doses.
- c. Alcoholics.
- d. Nutritious food.

3. *Surgical.* (1) Scarification (*for œdema*).

(2) Tracheotomy (*for urgent dyspnœa*).

h. *Acute Rheumatic Pharyngitis.*

DERIVATION.—'Pεῖνα, a humor.

SYNONYME.—Acute rheumatic sore throat.

DEFINITION.—A rather rare disease occurring most commonly in patients of the rheumatic diathesis, and characterized by an acute inflammation of but slight intensity of the mucous membrane of the pharynx, palate, and tonsils, occasionally extending to the larynx, accompanied by severe spasms of pain, and ending abruptly by metastasis to other regions.

ETIOLOGY.—1. *Predisposing causes.*

- (1) Rheumatic diathesis.
- (2) Weakened condition of the throat.

2. *Exciting causes.*

- (1) Atmospheric changes.
- (2) Sudden wetting.
- (3) Draughts of cold air.

PATHOLOGY.—

- 1. *Macroscopic.* { (1) *Pharynx.* Mucous membrane moderately congested, slightly swollen, reddened.
- 1. *Local.* { (1) *Oro-pharynx.* a. Pain sudden, severe, spasmodic.
b. Deglutition difficult; dysphagia (occasional).
c. Torticollis marked.
d. Tongue slightly coated.
e. Metastasis sudden, to other regions.
- 2. *General.* { (1) Malaise slight.
(2) Anorexia partial.
(3) Fever moderate, 101° to 102° F.
(4) Perspiration frequent, acid, profuse.

DURATION.—Short: twenty-four to forty-eight hours.

DIAGNOSIS.—From acute catarrhal pharyngitis.

Acute Rheumatic Pharyngitis.

- 1. Very rare.
- 2. Always sporadic.
- 3. History of former attacks.
- 4. Characterized by peculiar, sudden, severe pain.
- 5. Congestion of the mucous membrane of the pharynx slight.
- 6. Constitutional involvement slight.

Acute Catarrhal Pharyngitis.

- 1. Very common.
- 2. Frequently endemic or epidemic.
- 3. No history of predisposition.
- 4. Pain slight.
- 5. Congestion of the pharyngeal mucous membrane intense.
- 6. Constitutional involvement more severe.

- | | |
|---|--|
| 7. Marked torticollis.
8. Cough absent or slight.
9. Duration, twenty-four to forty-eight hours.
10. Termination by sudden metastasis. | 7. No torticollis.
8. Cough frequent.
9. Duration six to seven days.
10. Termination by resolution. |
|---|--|

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) *Sedative applications.*

- a. Powders of morphine and bismuth
 b. Guaiacum lozenges.

2. *Constitutional.* (1) Salicylates.
 (2) Alkalies.

i. Exanthematous Pharyngitis.

DERIVATION.—'Εξ, out of, from; ἀνθημα, compound of ἀνθος, flower, blossom; αἷμα, blood.

DEFINITION.—A very common condition of the pharynx, consisting in an acute, specific inflammation of the mucous membrane of a greater or lesser intensity, due to the action of the specific germ of the various exanthems.

VARIETIES.—1. Variolar pharyngitis.

2. Rubeolar pharyngitis.

3. Scarlatinal pharyngitis.

(a) Variolar Pharyngitis.

DERIVATION.—*Variola*, from *varius*, spotted.

SYNONYME.—Sore throat of small-pox.

DEFINITION.—An acute, specific inflammation of the mucous membrane of the pharynx occurring in the course of small-pox, and characterized by the formation thereon of pustules similar to those appearing upon the skin.

ETIOLOGY.—1. *Exciting cause.*

- (1) The contagium of small-pox.

PATHOLOGY.—

- | | | |
|------------------------|---|---|
| 1. <i>Macroscopic.</i> | { | (1) <i>Pharynx.</i> a. Mucous membrane congested, swollen; covered with pustules and ulcerations.
(a) <i>Size.</i> Small.
(b) <i>Shape.</i> Circular.
(c) <i>Color.</i> White or gray.
(d) <i>Surface.</i> Shallow; reddish floor.
(2) <i>Tongue.</i> Swollen, at times enormously (<i>severe cases</i>).
(3) <i>Gums and Teeth.</i> Covered with sordes and scabs. |
|------------------------|---|---|

SYMPTOMS.—

- | | | |
|------------------|---|---|
| 1. <i>Local.</i> | { | (1) <i>Oro-pharynx.</i> a. Respiration difficult, at times dyspnoea more or less severe.
b. Voice hoarse, complete aphonia (<i>severe cases</i>).
c. Breath fetid.
d. Expectoration muco-purulent, offensive.
e. Salivation profuse, viscid.
f. Thirst intense.
g. Tongue coated.
h. Deglutition painful, impossible (<i>occasional</i>).
i. Pain severe.
j. Cough slight.
k. Eruption on mucous membrane often preceding that on the skin. |
|------------------|---|---|

2. *General.* { (1) Malaise general.
 (2) Anorexia complete.
 (3) Fever high.
 (4) Pulse small, frequent.
 (5) Delirium mild, frequent.
 (6) Convulsions occasional.

DURATION.—Three to four weeks.

DIAGNOSIS.—Plain. By the cutaneous eruption.

PROGNOSIS.—Anxious.

CAUSES OF DEATH.—1. Suffocation.
 2. Exhaustion.
 3. Intensity of poisoning.

TREATMENT.—1. *Local.* (1) *Sedative applications.*
 a. Sucking of ice.
 (2) *Detergent and antiseptic lotions in douche and spray.*
 a. Boric acid, saturated solution in rose-water.
 b. Solution of chlorate of potassium.
 c. Tincture of myrrh.
 d. Tincture of cinchona.
 2. *Constitutional.* (1) *Tonics.*
 a. Quinine.
 (2) *Febrifuges.*
 a. Antifebrin.
 b. Antipyrin.
 (3) Stimulus as needed.

(To be continued.)

Clinical Memoranda.

REPORT ON A CASE OF HÆMATOPHILIA, OR A FAMILY OF BLEEDERS.

BY A. VANDERVEER, M.D.,

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DEFINITION OF HÆMATOPHILIA.

Gould's Dictionary.—"An abnormal tendency to hemorrhage, or ease of bleeding."

Billing's National Dictionary.—"Congenital tendency to hemorrhage with defective coagulability of the blood. Persons so affected are called bleeders."

Dunglison's Medical Dictionary.—"A disease, hereditary and attended by a hemorrhagic diathesis, with unusual obstinacy of traumatic hemorrhage, or a tendency to spontaneous bleedings and to swelling of the joints."

Quain's Medical Dictionary.—"A congenital disease, often hereditary, characterized by a tendency to immoderate bleeding, whether spontaneous or traumatic, and to obstinate swelling of the joints."

Heath's Dictionary of Practical Surgery.—"A hemorrhagic diathesis which is usually inherited, and in nearly all cases manifests itself during the first few years of life. Painful swellings of the joints are frequently associated with this disorder. Supposed to be more common among inhabitants of northern countries."

KNOWING the different members and their surroundings, I have thought it wise to put on record the following facts connected with the history of this family.

Mr. J. D., the grandfather, whose family history is free from cases of hæmatophilia, was a painter by occupation; at the age of thirty he had several attacks of hæmaturia, extending over a period of several years, but finally, as he thought, made a good recovery; believing, as his physician did, that the attacks were due to his occupation. This was not changed, however, and he went on very well in health, when, at the age of forty-five, he came under my observation and treatment. He had been suffering for two months from repeated attacks of hæmaturia, without any pain. On careful examination I was forced to believe there was no renal calculus present, nor

tumor of any kind in the urinary tract. Various medicines were tried and careful attention paid to diet, also as much as possible rest was enforced. He remained under treatment for about two years, apparently better at times, and then again much worse without any known cause. He then improved and remained well up to the age of seventy, when he died without any decided well-marked disease, although he did have a slight form of what in earlier life he had had many attacks of,—*i.e.*, painter's colic. A post-mortem was allowed, but no marked pathological condition was found. Much to my surprise, the kidneys appeared absolutely healthy. This patient had one brother, now living, a large, fine-looking man, good habits, carriage-trimmer by occupation, but who has always suffered more or less from epistaxis. Otherwise healthy. Mr. J. D. and wife (the latter giving a good family history) had born to them several children, and, so far as I have been able to learn, no cases of hemorrhage developed among them in childhood.

Mrs. W., the eldest daughter of Mr. J. D., at the age of twenty-four, married Mr. H. W., whose family history is clear. She became the mother of seven children, and in nearly all her confinements I was the attending physician. She had no serious post-partum hemorrhage, though the flow at times was severe. Her usual menstrual period is quite free. She has always had great fear of bleeding, and would not have a tooth extracted because of this dread. Her eldest son and daughter have had no hemorrhages; wounds have usually healed kindly. Her third child, a son, when nearly three years old, injured his tongue and soft palate by falling on a tin bean-blower. This was followed by a constant oozing of blood, and resulted in his death on the fourteenth day. I made local applications of various styptics, and gave ergot, gallic acid, iron, and other medicines internally, but apparently with little good.

Her fourth child, a boy, when twenty months old, was suffering from teething, and in my absence a strange physician was called in, who at once, and before the mother really knew what was going on, lanced his gums, which was followed by constant bleeding and death on the eighth day. In this case, in treatment, I saw the child a few hours after the lancing, and began a prompt, vigorous treatment, but I must frankly say it did not seem to control the hemorrhage longer than about twelve hours at a time.

Her fifth child, a daughter, is quite strong and healthy at fifteen.

Sixth child, a boy. I had a serious time in controlling

hemorrhage from a slight cut in his finger when about a year old. Died when fourteen months old from spinal meningitis.

Seventh child, daughter. Now nine years old ; no hemorrhages ; not strong, but doing pretty well. This child has suffered three or more attacks of swelling of both knees and elbows, which the mother has called rheumatism, and which I have not attempted to deny to her, though in my own mind these attacks were undoubtedly effusion of serum resulting from the hemorrhagic diathesis. Mrs. H. is still regular in her menstruation, though very profuse.

The second daughter of Mr. J. D. married, at the age of twenty, a Mr. J. W., whose family history is free from hemorrhages. She had four children. I was not her physician, but saw one of the children in consultation. Her first child died when an infant, but not from hemorrhage.

Her second child, a boy, strong and vigorous, sustained, when five years old, an incised wound over left frontal region, and from which he bled very freely at first. The wound was well cared for, and bleeding controlled for several days. Then a secondary hemorrhage came on which could not be controlled, and I am informed he died about the fourteenth day. This is the case I saw once with the family physician.

Her third child, a boy, well developed, when two and a half years old accidentally bit his tongue in falling, from which a gradual hemorrhage continued until his death, on the *eighth* day.

Her fourth child died from hemorrhage after moving into an adjoining State. The particulars I have never been able to learn. These were all the children she had, and a sad, sad household presents.

R. D., a son of Mr. J. D., married, and now beyond forty, suffers frequently from severe hemorrhage from the nose. He has lost no children from hemorrhage.

These cases have been to myself quite a study. The anxiety of mind the parents have passed through in caring for their children cannot be described. The worry and anxiety in being called to attend such a family, as the physician, it is impossible to express. I had learned to let them alone, and when called to attend them for bruises or accidents was very careful in dressing not to provoke bleeding. I had several times declined to lance the gums when symptoms seemed to urgently call for it. In the family of Mrs. H. W., what was most distressing was the fact of her first child, during teething, passing into a spasm, and becoming hemiplegic, from which condition he never fully recovered. Later he became an epileptic, giving his family much sorrow. Naturally she had

much additional sorrow and anxiety when her babes were passing through dentition. I regret I am unable to add anything to the treatment already spoken of in text-books. I would urge in such cases a diet that will keep the blood rich in fibrin.

The following extract from Bryant has such a direct bearing upon these cases that I have thought it worthy of insertion.

"Hæmatophilia, or the hemorrhagic diathesis, as the result of heredity, is a subject of peculiar interest to the surgeon, and is to be distinguished from a temporary disposition to bleed, which is present in purpura or leuchæmia, and is often acquired. It attacks the boys of a family rather than the girls, and when bleeders beget children, all, as a rule, appear healthy, but when the girls have families, their boys, as a rule, are bleeders. It may appear at the very earliest period of life. It manifests its presence by a peculiar tendency to bleeding on the slightest provocation, and by the difficulty there is in arresting hemorrhage when it does take place. The surgeon should always have before him the possibility of his patient being a subject of this disease; for, although it would not prevent the performance of any operation essential to save life, it would materially affect the question of operating for any reason of expediency, and would influence the practice adopted.

"The bleeding may take place from any part of the body or into any cavity. It may be venous or arterial, and may occur without any definite cause or follow some slight injury. The swelling of the joints which takes place in this affection in some cases is due to hemorrhage, but in others to serum. In a drawing in my possession the synovial membrane was found, after death, covered with beautiful fine fringes stained a deep orange color from effused blood. Sir W. Jenner states that in these cases 'the tissues are soft, and bruise easily; the blood is slow in coagulating, although it coagulates as firmly as in health, that is, blood is formed rapidly, and there is a tendency to plethora of the small vessels, and that when the patient is looking his best, injuries have the worst effect, and spontaneous hemorrhages are most likely to occur.'"

In this disease, therefore, he advises a mercurial and saline purge every three weeks, dry food, with a considerable portion of dry, fibrous meats, and plenty of open-air exercise, great care being observed to avoid injuries. The bleeding, as a rule, ceases spontaneously. In the acquired disease, iron is of great value.

ARTIFICIAL BABY-FOOD AND SCORBUTUS.

BY G. H. WHITCOMB, M.D.,

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THE artificial feeding of infants has been to me a perplexing problem ; methods and mixtures of various names and natures have been tried, and generally abandoned. The delectable results depicted by "baby-food literature" have not been obtained. Clean, fresh milk from native cows (properly cared for and fed, prepared after some of the numerous methods, and varied to meet the requirements of the case, has served me best.

Occasionally milk or cream in any form disagrees, when recourse must be had to some cereal, combined food or meat-juice.

C. W. LaV., aged eleven months, third and healthy child of sound and mature parents, whose family history is unexceptionable. The previous children had also been healthy. Their house is in one of the most salubrious portions of New York City. Its sanitary and hygienic condition is all that intelligent supervision and ample means can secure. The child nursed in part, and had its scant food-supply pieced out by one of the artificially manufactured baby-foods for five months, when an attack of tonsillitis dried up the maternal fountain ; after which the artificial food became the exclusive diet, by the explicit direction of the family physician (a New York Homœopathist). To make sure that the food was in good condition, it was obtained direct from the manufacturer. On this the child seemed to thrive famously, at least so far as fat was concerned. When a little over ten months old she became petulant, and evinced a disinclination to move or be handled. The legs were partially flexed, and maintained rigidly. Any attempt to straighten them elicited screams. The gums were spongy, and bled frequently ; muscular pains were so severe as to deprive the child of rest.

The physician diagnosticated and treated rheumatism ; meeting the mother's instinctive suggestion of change of food with emphatic disapproval. After ten days the family went to Rome, New York, where the diagnosis of rheumatism was approved, and the alkaline treatment pursued for two weeks ; after which they came to Greenwich. The doctor's note to me mentioned the treatment given, and suggested a gradual

change of diet. The condition had grown constantly worse for the twenty-four days of illness.

She came under my care June 20, 1890, when I found it difficult to make a satisfactory examination, as she screamed wildly at the name doctor, and when handled by any one.

The child presented a grotesque appearance, owing to the great accumulation of puffy fat. The limbs resembled Bologna-sausages,—the natural folds constricting the limbs. The skin was pale, and covered with a coarse papular eruption, interspersed with which were a few patches of purpura. Appetite and digestion were good; the bowels constipated, with dry, lumpy, and often very offensive stools. The urine was of good color and quantity, of alkaline reaction, and loaded with phosphates. Gums were spongy, ecchymotic, and bulbous, the blebs discharging a sero-sanguinolent fluid, producing a faecal breath. Seven teeth had been erupted. No evidence of rachitis was to be found in bone or cartilage. The patient was free from fever; had fitful and restless sleep; made no voluntary movements; cried out if touched. The pain and tenderness was general, though the lower extremities suffered most, and the left side worse than the right. The hamstring and Achillis tendons were hyperæsthetic, and seemed shortened, as by tonic spasm of their muscles. The diagnosis of infantile scorbutus was too clear to be mistaken.

The treatment was simple and prompt in its results, three weeks sufficing for a complete restoration to health. It consisted of the continuance of the previous good care; out-of-door life; good fresh milk of native cows properly prepared; the juice of rare-broiled beef-steak, and sweet oranges. The tincture of the muriate of iron was given for a few days, and constituted the only medication.

This, though but a single case, is so clear and unequivocal in its causation, that it is not assuming too much to lay down as a general rule, that no cereal or chemically-prepared food can nourish perfectly, and if used for any length of time should be supplemented by fresh milk, meat, or fruit-juices.

ERUPTION OF THE DECIDUOUS TEETH, AND GENERAL SYMPTOMS.

BY H. AUGUSTUS ALDRED, D.D.S.,

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AT about the fifth month after birth the process known as the eruption of the teeth begins: a double process, consisting of the gradual elongation and rising of the teeth, and the coincident absorption of the hard and soft tissues overlying them.

The alveolar borders are the first to show signs of the absorptive process, by a dissolution or melting of their approximated edges, thus gradually making a wider space for the advancing teeth. These rising in their sockets, the roots meanwhile lengthening, press upon the overlying gums, which, becoming thinner and thinner, finally allow the escape of the imprisoned teeth.

The symptoms of pathological dentition are loss of appetite, peevish fretfulness, wakefulness, feverish thirst, continuous suffering, bowels loose or constipated, tendency towards congestion of brain, and it may even terminate in death. The usual local signs of abnormal dentition are redness and swelling, followed by whiteness of gums, decided flow of saliva ("drooling"), desire to suck thumb or fingers, biting the ring or spoon with determination, alternately taking and refusing the breast, and desiring upright position (to counteract flow of blood).

The rule is that the lower teeth precede the upper of the same class two or three months, but not infrequently the upper precede the lower by the same difference in time. Again, the rule is that the teeth are erupted in pairs, with an interval between the different pairs, but occasionally a single tooth will appear a considerable time before its fellow, and in other cases two or three pairs will erupt coincidently. The deciduous or temporary set of teeth are twenty in number. The usual order of their eruption is as follows:

Central incisors.....	{ Lower	5	to	7 Months.
	{ Upper	7	"	8 "
Lateral incisors.....	{ Lower	8	"	9 "
	{ Upper	9	"	10 "
First molars.....	{ Lower	11	"	12 "
	{ Upper	13	"	14 "
Canines or cuspids	{ Lower	17	"	18 "
	{ Upper	19	"	20 "
Second molars		23	"	30 "

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Cheadle : Common Errors and Fallacies in the Treatment of Children. (*Practitioner*, July, 1891.)

Some of the errors in the treatment of children are survivals of old methods based upon the faulty pathology of a former day ; others arise from erroneous deductions based upon insufficient knowledge, especially with regard to the action of remedies whose characters are not well known. It is appalling to observe how recklessly new and powerful drugs are administered before their physiological action has been finally ascertained and proved. With such fragile patients as little children care in this respect is doubly important.

No mistakes are more pregnant of mischief than those connected with feeding. The chief points with regard to which faulty practices prevail are the following :

1. *The sudden weaning of infants onto fresh cow's milk and water.*—The large curds of cow's milk are often beyond the feeble digestive powers of the infant. The undissolved clots under favorable conditions of heat and moisture ferment and set up colic, vomiting, or diarrhœa. Boiled milk with barley-water seems to be much more readily digested. In the case of very delicate children the milk should always be peptonized at first.

2. *Insufficient gross amount of nutritive material.*—For example, a child is found unable to digest a mixture of cow's milk stronger than one in four. The capacity of the stomach, however, is limited, and it is impossible for it to take a sufficient quantity of this mixture to supply the material required for growth and nutrition. The difficulty may be overcome by adding some cream or perhaps some of Valentine's meat-juice.

3. *The use of food deficient in fat.*—This is an element of especial importance in the food of children, but is almost wholly wanting in most artificial foods, and is deficient in most condensed milk.

4. *The use of food deficient in proteid.*—Most artificial foods are lacking also in nitrogenous matter. Children deprived of these two elements are often large and fat, but are anæmic, flabby, and rachitic.

5. *The use of diet deficient in antiscorbutic elements.*—This is a point that is frequently overlooked. All condensed foods, farinaceous foods, and dry artificial foods are lacking in this regard, and should be supplemented by some fresh element.

6. *The prolonged use of artificially-digested foods.*—These preparations do excellent service in the case of children just weaned, or with small power of digesting cow's milk. If they are continued for months the power of digestion becomes seriously impaired, nutrition falls off, and the child becomes anæmic and rachitic.

In the management of diarrhœa numerous errors are prevalent, one of the most common and dangerous, perhaps, being the idea that a moderate amount of diarrhœa is beneficial. So far from diarrhœa being a safeguard against convulsions, it is precisely those children who have been reduced by diarrhœa and vomiting who are most liable to them. Young children bear purging badly. A diarrhœa which begins moderately is apt to develop dangerous proportions in a short period and reach a point beyond control of medicine. The younger the child the greater the importance of getting a diarrhœa quickly under control. As regards food, give nothing that is not sterilized, nothing that is not predigested or easily digested. Astringents are useless in the acute stage, especially the vegetable astringents. Opium is essential in severe cases, even in young children. Gray powder and Dover's powder in small and repeated doses should be given if there is vomiting. The most efficient remedies are bismuth in full doses with small doses of opium.

In the treatment of chronic constipation in children, as a rule, three devices only seem to be adopted. 1. The administration of more or less active purgatives from time to time, the remedy being repeated as often as the bowels become confined again. 2. The use of enemata, sometimes regularly. 3. The inclusion in the diet of coarse foods and fruit, oatmeal, cabbage, prunes, figs, and the like. If the constipation is chronic, and hence habitual, it cannot be cured by spasmodic efforts; but that is the criticism upon the treatment described. In most cases a drug is required, the constant daily use of some mild laxative being essential to ultimate success. Treatment must be *continuous*. Spasmodic, intermittent over-treatment will fail.

Night-terrors occur usually, but not invariably in delicate neurotic children. The direct cause is usually undue stimulation of the brain, or of the imagination, by exciting stories; unkind treatment; a visit to the zoological garden; or over-pressure at school. By far the most common cause, the

author believes, is constipation, often slight but persistent, the stools being hard and dry and usually of light color. The error in the management of these cases is the use of sedative treatment, the constipation being neglected. The neurotic element alone being recognized, bromides are prescribed, often with good effect for the time. The cause being allowed to remain, the relief is, in many instances, temporary.

Among the drugs most heedlessly used at the present day are those which have the property of reducing bodily temperature, such as aconite, antipyrin, and antifebrin. These are powerful drugs, and are too readily resorted to. Pyrexia is a symptom, not the cause or essence of disease. Yet the temptation to reduce the temperature is strong. It must be remembered, however, that in addition to their antipyretic power these drugs have other active properties. They are especially cardiac depressants. In many of the diseases in which they are used the danger lies not in the pyrexia, but in heart-failure. High pyrexia is an element of danger, but is not the sole danger. This is especially true of pneumonia, and the results of decided antipyretic treatment of that disease has not been favorable. Children do not bear such treatment as well as adults. The mere forcing down of temperature by means of antipyretic drugs is futile as a means of curing the disorder which gives rise to the febrile state, and is, besides, often dangerous.

One of the most universal mistakes, although, perhaps, not one of the most serious, is that of relying largely or chiefly upon drugs in the treatment of diseases of defective nutrition. Children are apt to be dosed with cod-liver oil and other drugs without regard to the condition of their digestive organs. A delicate child is drenched with these drugs because it has a poor appetite, is ill-nourished, and anæmic. The tongue is coated and the bowels confined and the child is receiving improper food. Here the chief cause of the anæmia and defective nutrition is the disordered state of the functions of digestion and absorption. A few doses of calomel, followed by a tonic with a mild saline laxative and judicious feeding, will do far more good than cod-liver oil, iron, and hypophosphites. They are most valuable drugs in their place, but in these states of disordered function, by intensifying digestive difficulty and impairing appetite, they do more harm than good. In rickets far too much reliance is placed upon drugs to the exclusion of milk, cream, meat-juice, sunlight, and fresh air.

The cruel and useless practice of swabbing out the throat with caustic applications in diphtheria has almost died out, but this method of applying astringents and solvents still sur-

vives. After long experience and observation the author unhesitatingly condemns the practice as injurious. Such applications probably do more harm than good, while the terror, excitement, heart-strain, and physical exhaustion are conditions most inimical in a disease tending to death by asthenia.

Other errors in treatment are briefly mentioned, such as oppressive poulticing of the chest in pneumonia; the administration of emetics in diphtheritic croup, which is utterly ineffectual except to exhaust and depress the patient; their frequent repetition in bronchitis and whooping-cough when there is no extreme mucous obstruction of the air-passages to justify it; and the too frequent purging of rickety children.

Clouston: *The Neuroses of Development; being the Morison Lectures for 1890.* (*Edinburgh Medical Journal*, March to August, 1891.)

An abstract of the first of these lectures was published in the June number of this journal. The author continues with a discussion of chorea, which he considers a developmental neurosis. It occurs in seventy-five per cent. of the cases between the ages of six and fifteen. It is therefore an ante-productive disease, and yet one not prevailing during the period of greatest brain-growth before seven years. We may call this period that of co-ordination of motion and emotion. Sensation, special and common, has been developed; muscular co-ordination has progressed far; many of the mental faculties have acquired some strength, but muscular action has not been fully co-ordinated with feeling. The inco-ordinated movements of chorea show themselves first and most in the mind, muscles of the face, those of expression. Mental and emotional impressions are very potential causes of the disease. Like hysteria, it is a disease of town-life and of civilized races. It has a close relation to the rheumatic diathesis; it is often found in phthisical families, but still more in families where epilepsy and insanity prevail. The most reasonable hypothesis as to its seat is, in the author's opinion, that the basal ganglia are at fault, and this occurs just when the co-ordination of their motor functions with mind is being perfected. It has, he thinks, always a neurotic heredity even in the rheumatic cases, a combined rheumatic and neurotic heredity being the strongest predisposing cause. It is usually a transitory neurosis, and as bodily development proceeds tends to end in recovery. Its relation to epilepsy is very close.

Spasmodic asthma must be reckoned among the neuroses, the influence of subtle changes of atmosphere proving it to be functional. It is often recovered from as development ad-

vances, but is not a transitory disease like chorea. No doubt its seat is in a disturbance of the pneumogastric centres, which are unstable from some hereditary cause. It is largely a disease incidental to growth and development. In two hundred and twenty-five cases reported by Salter, thirty per cent. appeared before the patients were ten years of age.

Somnambulism is a neurosis which begins at nine or ten years and commonly ends during mid-adolescence. It has a close hereditary relation to epilepsy, hysteria, and insanity. It has been described as a form of insanity, but with this the author emphatically disagrees.

Megrim is one of the purest of the developmental neuroses localized in the pre-reproductive and adolescent periods, almost never appearing before seven and never beginning after twenty-five. After it has once begun it usually continues during reproductive life and then ceases. It is essentially a sensory disease. Like insanity, it is commonly derived from ancestry that has suffered, not from neuroses generally, but from it alone. A case of much interest is reported as illustrating many pathological facts concerning the disease: 1. Heredity, this being usually from the same sex. 2. Developmental character, usually coming on before or at puberty. 3. Its relationship to the normal periodicity of reproduction. 4. Accentuation by disturbed menstruation.

Visual neuroses are common and appear as follows: Hypermetropia is seen first between one and four and is accompanied by convergent strabismus. Myopia is seen between five and twelve, advancing up to twenty-one or twenty-five, with its convergent strabismus, which comes on between twelve and twenty-four. At least ten other serious diseases of the eye occur during infancy or childhood.

Two cases of developmental general paralysis are described at great length. They seemed to be due to hereditary syphilis as a predisposing cause, and to puberty as the exciting cause, with a neurotic heredity as an extra-predisposing cause.

Tuberculosis in relationship to the developmental neuroses, and especially insanity, is dwelt upon at considerable length. Deaths from tuberculosis are four times more common among the insane than in the general population.

It is doubtful if we have any facts to prove that acute rheumatism has any neurotic hereditary connection. It has, however, a striking relation to the development of the reproductive power. Over one-half of the cases occur first between fifteen and twenty-five, while but four and a half per cent. occur after the cessation of the most active reproductive nisis, fifty.

Almost all cases of true epilepsy first arise during the growth and development of the brain. This is a sweeping statement, but is capable of proof. The disease is, therefore, of all the graver neuroses, one of the most developmental, ranking next to insanity both in frequency and seriousness. We have already seen examples of developmental disease due to disordered action of the trophic apparatus, and also diseased action in the co-ordinating and inhibitory apparatus in the lower brain-centres. We have here disturbance in the co-ordinating and inhibitory apparatus in the highest regions, or the brain cortex, that originate and control voluntary motion and volition itself. Hughlings Jackson did great service when he coined the expression "discharging lesion" of the motor cortex to express convulsive movements. To discharge motor energy is the function of great tracts of brain-cortex. To have a lesion in this discharging function means that the quality of the motor apparatus is impaired.

Unrestrained and unregulated force is always destructive. It is not surprising that we have to go back for the origin of most cases of epilepsy to a bad heredity, and we find it in pathological affinity with almost all the other developmental neuroses, most notably with insanity. It is the type of all the explosive disorders. The essence of the lesion in typical epilepsy is loss of power in the inhibitory motor cells, in insanity it is loss of the inhibitory power in the mental areas. Motion attains perfection sooner than mind, hence epilepsy arises at an earlier period of life than insanity. The author is convinced that in the vast majority of cases the disease is the result of a morbid quality in the working of the motor centres of the brain, and is not really due to a localizable or exciting cause. It is the result of unregulated liberation of energy. Gowers found in fourteen hundred and fifty cases that three hundred and forty, or twenty-three per cent., arose during the first six years of life. The next great period for the development of the disease is puberty. One-third of Gowers's cases developed between thirteen and eighteen. The first of these is the period of rapid brain-growth, the second the period of development of reproductive power.

Hysteria is treated at considerable length, for the author attaches far more importance to the mental element in the disease than most authorities seem inclined to do. It is to a large degree confined to the period of development, and is more strictly hereditary than any other neurosis, and is more mixed with other neuroses in the same family.

Adolescent insanity, with its secondary dementia, is more hereditary in its character than any other form of insanity.

Of seventeen hundred and ninety-six cases of all varieties, three hundred and twenty, or eighteen per cent., were between eighteen and twenty-five years of age. Of this number the disease was congenital, or due to a very special exciting cause, in ninety cases, leaving two hundred and thirty, or thirteen per cent. of the whole, in whom the influence of development was the chief predisposing cause. The fourteenth and fifteenth years, which are essentially those of puberty, produced but two of these two hundred and thirty cases. This shows the first onset of reproduction to be a most insignificant factor in the production of mental disease. The five years from the twenty-first to the twenty-fifth produced more cases of insanity than any other five years of life.

Bonnaire : Inhalations of Oxygen by the New-Born. (*Journ. de Méd.*, June 28, 1891.)

The subject was suggested by Tarnier's use of oxygen for the treatment of very young children. It was first tried by the author in the case of a premature infant, apparently a "blue baby," who had been placed for several days in an incubator (*couveruse*) without very good result. A sufficient quantity of stimulants had also been administered. At length it was decided to use oxygen, and it was introduced into the incubator, in which the child was still kept at the proper degree of temperature. This artificially-supplied volume of oxygen was furnished two hours daily, and at the end of a week he was strong enough to be removed from the incubator. A second trial of this agent was made upon several infants suffering with bronzed hæmaturic disease, a disease resembling pernicious anæmia. It was administered in the same way as in the first case, and was successful with several children who had not passed the anæmic or leuchæmic stage of the disease. The following are considered suitable indications for the use of oxygen in the new-born :

1. Whenever there is insufficient pulmonary hæmatosis, either from obstruction of the respiratory passages or from weak action of the mechanical apparatus of respiration, or from want of excitation of the respiratory nerve-centre, oxygen administration is indicated. Apparent death in the new-born is, therefore, the first indication, though this does not exclude efforts at artificial respiration ; besides, oxygen is not always available as soon as required. But if the first dangers of asphyxia have been overcome, and respiration is still ineffectual, or pulmonary disease imminent, with general asthenia, oxygen will be found a valuable recourse.

2. Oxygen is also indicated for disorders in the interstitial

circulation, of which sclerema in premature infants is one of the most common manifestations.

3. Changes in the blood of infectious origin, like that which takes place in the hæmaturic bronze disease, of which mention was made.

4. Conditions in which there is decided depression of the temperature. Athrepsia, in its acute and chronic forms, is the type of such conditions.

A. F. C.

Bérillon: The Susceptibility of Children to Hypnotism. (*Gaz. Méd.*, July 25, 1891.)

This subject, or, as it is called by the author, the suggestibility of children, was recently discussed by him before the Paris Society of Hypnology. The matter is one of scientific interest, but it also has a medico-legal importance. The author has found that out of every ten children, taken indiscriminately from every class in society, eight may be put to sleep (hypnotized) at the first or second trial. But the singular part of the subject is that children who have the most marked hereditary nervous taint are the most difficult to hypnotize. It has also been demonstrated that hysterical persons are only slightly susceptible of hypnotization, while epileptics are highly susceptible. Children without hereditary taint, who are active and vigorous, are usually hypnotized with facility. The author recommends that suggestion (hypnotization) be made use of in the treatment of such conditions as insomnia, night-terrors, kleptomania, onanism, and other vicious habits. If such practice is limited to ends which are strictly useful, and employed only for therapeutic purposes, it would appear free from danger and fruitful as to its results.

A. F. C.

Kafemann: The Nose and the Pharynx in School-Children. (*Rev. Mens. des Mal. de l'Enf.*, June, 1891.)

Inaptitude for work in school-children is often caused by adenoid vegetations in the pharynx. The child becomes fatigued by his efforts at breathing, the mouth is continually kept open, and he is unable to fix his attention upon his studies. The author has examined the nose and pharynx of two thousand two hundred and thirty-eight children, posterior rhinoscopy being possible in only one hundred and ninety-five. Of eleven hundred boys, the pharyngeal tonsil was normal in 65.4 per cent., and in eighty-six cases there was hypertrophy. In three-fourths of the latter the hearing was defective and the drum membrane diseased; twelve of the children were so deaf as to be unable to follow the teaching. Of eleven hundred and two girls, there was hypertrophy of the pharyngeal tonsil in

10.6 per cent., and twenty-nine of the cases were quite backward mentally. Hypertrophy of the tonsils was found two hundred and eighty-one times. In four hundred cases the buccal pharynx was the seat of granulations. The cartilaginous septum of the nasal fossæ showed irregularities in one hundred and ninety-one cases. Hypertrophy of the nasal mucous membrane was found in sixty-eight boys.

A. F. C.

Smith, J. A.: A Cure of Santonin-Poisoning. (*British Medical Journal*, June 6, 1891.)

The patient was a girl, three and a half years old, who had taken three grains of santonin in one dose. She had vomited once. There was no diarrhœa, no prostration, no rash; the pupils were slightly dilated, the temperature normal, the pulse 80. There was no true delirium, the chief symptom being the apparent change in the color of all objects, mostly to green. White appeared yellow, red and blue were changed to green. No object appeared its proper color. The urine was an intense saffron color. The symptoms disappeared after twelve hours.

Heubner: Acids of the Gastric Juice during Digestion in Infants. (*Rev. Mens. des Mal. de l'Enf.*, June, 1891.)

The children who were the subjects of the investigation were nursed at the breast, or with cow's milk, or with milk-foods, or with albuminoid fluids, some being in good condition and some being athreptic. The analysis of the gastric juice which was drawn from the stomach at different periods after the ingestion of food was made as follows: The juice was filtered and distilled, and deprived of its volatile acids; ether was added to remove the lactic acid; then it was once more distilled and once more filtered. By Hoffmann's method, the quantity of free hydrochloric acid was determined. The quantitative determination of volatile acids was made twenty-three times in children nine weeks to eleven months old. In five cases the quantities were appreciable, in seven there were traces, and in ten there was none at all. The examinations were made three-quarters of an hour to an hour and a quarter after the ingestion of milk. The ages of the seven children in whom traces of volatile acids were found varied from nine weeks to twelve months, some being nourished at the breast and others with cow's milk. The juice was examined three-quarters of an hour to two hours after the beginning of digestion. Of the other ten, there were five who were nourished at the breast, two with diluted cow's milk, two with milk-food, and one with fluid albuminoids. The juice was examined from

five minutes to two hours after eating. In twenty-four cases the examination for lactic acid was made. In four it was wanting, the ages varying from eleven weeks to eight months, and the children being fed,—one with Nestlé's food, one with fluid albuminoids, and two with a decoction of salep.

Traces of it were found in six whose ages varied from eleven weeks to one year, three of them being nourished at the breast, two with cow's milk, and one with milk-food. In eleven infants from nine weeks to eleven months old, appreciable quantities were found, four of the children being nourished at the breast and the others with cow's milk or milk-food. The quantity of lactic acid did not increase with the duration of the digestion. Free hydrochloric acid was sought in forty-six cases and found in twelve.

The foregoing facts confirm the statements of Leo, who explains the frequent absence of free hydrochloric acid in the gastric juice of infants by the property which milk possesses of combining with hydrochloric acid, and so failing to appear in fluids that are examined. Hydrochloric acid is found in the free state in children when the *combining* force of the contents of the stomach is rapidly exhausted, as in cases in which children are given a decoction of salep.

A. F. C.

Leroux: Antipyrin in Chorea. (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

The author's conclusion is that antipyrin exercises a favorable action on Sydenham's chorea, quickly diminishing its intensity and shortening its duration. Of sixty cases treated, forty-one resulted favorably and nineteen unfavorably. Of the forty-one favorable cases, in nineteen the average duration of the disease was thirty-three days, and the treatment twenty-one days; in seven others the average duration was fifty-five days, and the treatment forty-three days; in seven the average duration was sixty-eight days and the treatment forty-nine days.

In nineteen cases the results were unfavorable for the following reasons:

1. The condition proved refractory to antipyrin.
2. The medicine could not be tolerated, vomiting, diarrhœa, etc., being caused by it.
3. Cutaneous eruptions were produced when intolerance existed.
4. Treatment was irregularly carried out or interrupted by an intercurrent affection.
5. In some cases the disease was prolonged in the form of convulsive tic, which was refractory to antipyrin, or post-choreic tic, which was usually cured in a few months.

In thirty-six out of sixty cases there were recurrences, notwithstanding the antipyrin.

The antipyrin should be given in three- to six-gramme doses daily, the doses being rapidly increased. Severe accidents, especially toxic phenomena, were never caused by the antipyrin, though cutaneous eruptions of various kinds frequently resulted.

A. F. C.

Clopatt: Chemistry of the Stomach in Infants. (*Rev. Mens. des Mal. de l'Enf.*, June, 1891.)

The author's conclusions are as follows:

1. The gastric juice of infants has an acid reaction.
2. In children at the breast the acidity varies very little, differing not more than from three- to eight-hundredths of one per cent. at the end of the first hour.
3. Gastric digestion is accomplished without the formation of free hydrochloric acid. It is only exceptionally that analyses show the presence of traces of this acid.
4. In children at the breast the fixed chlorides show a remarkable constancy.
5. In bottle-fed children, absolute acidity is often more pronounced than in the breast-fed. At the end of the first hour there is frequently more than one-tenth of one per cent. of acid.
6. In bottle-fed infants there are other acids besides hydrochloric.
7. The quantity of fixed chlorides is more subject to variations with bottle-fed than with breast-fed infants.
8. The changes in the acidity and other qualities which are determined by analysis are not exactly proportioned to the time.

A. F. C.

Abadie: Treatment of Diphtheritic and Diphtheroid Conjunctivitis. (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

In the literature concerning the treatment of ophthalmia there is nothing precise which is to be found. Some advise the use of nitrate of silver, others warm, and others iced compresses. Others still recommend a great variety of antiseptic solutions. In most cases the eyes have been lost, cures being exceptional. Since Fieuzal and Coppez recommended the use of lemon-juice for this disease, the author has frequently made use of it, and always with satisfactory results. It was used fearlessly, for it was believed to be harmless to the cornea. During the three or four days in which the disease is most threatening it must be used every five hours, night and day.

Subsequently the intervals can be lengthened to eight, then to twelve hours, and then it can be discontinued altogether. This treatment is useful not only in pure diphtheritic forms of the disease, but also in the diphtheroid forms. It is believed that nitrate of silver is very injurious in the treatment of this disease.

A. F. C.

II.—MEDICINE.

Caiger: An Analysis of One Thousand and Eight Cases of Scarlet Fever occurring during the Year 1890. (*The Lancet*, June 6, 1891.)

The author has summarized in this paper the principal facts in this considerable number of cases of scarlet fever, consecutively treated under conditions favorable for observation.

1. *Seasonal prevalence*.—The admissions were at their lowest during the first quarter of the year. A slight rise was observed in May, and was maintained during the summer. A rapid increase was noted in September, and reached its highest point in October. After this the numbers fell rapidly until the end of the year. This accords with that which has been observed in London during the last seventeen years.

Age distribution.—The largest number of admissions fell within the second quinquennium of life: 44.5 per cent. were between five and ten years.

The first quinquennium furnished the next largest number: 31.1 per cent. were aged from one to five years.

The number of admissions regularly increased with each year of life up to the fifth year, when the maximum was reached, after which they fell somewhat more gradually until the tenth year was reached.

After the tenth year each quinquennium showed a progressively decreasing number until forty years, after which age only two were admitted.

Sex.—The number of the two sexes were nearly equal.

The death-rate was 4.67 per cent. A very satisfactory figure when it is remembered that the mortality of 32.484 per cent. of cases of scarlatina admitted into London hospitals during the previous seventeen years stands at 10.76 per cent., and for the last five years has averaged 9.63 per cent. The explanation of this is, the cases admitted into these hospitals came from poorer neighborhoods, and it is a recognized fact that such cases, in consequence of their lower vitality, show a much weaker power of resistance to the attack of scarlatina than those who are better housed and better fed.

The percentage of mortality was highest during the cold season of the year.

The death-rate of those under five was 11.4 per cent., and diminished rapidly each succeeding quinquennium.

The liability to develop scarlet fever and the probability of its fatal issue diminish—in the former case after the fifth year, and in the latter from the time of birth—with each year of life.

Complications.—Otitis occurred in 12.9 per cent. of cases, adenitis in 7.1 per cent., rhinitis in 6 per cent., eczema in 3.3 per cent., albuminuria (simple) in 3.1 per cent., ulcerative stomatitis in 2.8 per cent., nephritis in 2.7 per cent., rheumatism in 2.7 per cent., bronchitis in 2.08 per cent., conjunctivitis in 1.35 per cent., tonsillitis (secondary) in 1.24 per cent. These are briefly discussed seriatim.

Otitis occurred in one hundred and twenty-five cases, mainly in young children. The younger the child the greater its apparent liability to the disease. The continuance of the discharges varied from three or four days to three or four weeks. Only one case of otorrhœa occurred in a patient over ten years of age. It is a point worth bearing in mind that extreme fetor of discharge in otitis media is not necessarily dependent on bone-disease.

Adenitis occurred next in order of frequency. This does not include the glandular swelling directly associated with the faucial inflammation. It either more or less rapidly resolves or it suppurates. Of these cases, one-third suppurated. Cases of gland swelling associated with ear-discharge are excluded from this category, because of the obvious cause. The large majority of these cases had no albuminuria, though albuminuria was relatively more frequent in patients suffering from adenitis.

Rhinitis with a more or less purulent discharge occurred in fifty-eight cases. It was frequently associated with otorrhœa, and was relatively more common in young children.

Eczema was noted in thirty-two cases. Its most frequent seat was at the junction of the *alæ nasi* and upper lip, behind the ears and on the ear itself, especially at the exterior auditory meatus, and within the groove of the helix.

Young children showed a greater liability than older ones. In most cases it necessitated a prolonged detention in hospital. Several cases of eczema capitis were very tedious in their convalescence. Albuminuria was recorded in thirty cases. This number does not include all cases in which faint and transient traces were present at one time and another.

This is in contrast with Dr. Attley Gresswell's paper,—“A Contribution to the Natural History of Scarlet Fever.” Dr. Gresswell found albuminuria in ninety-three per cent. of his

cases. But Dr. Gresswell's cases were lacking a diet rich in highly diffusible albumen without any baths. The author's cases took a diet containing a much less proportion of diffusible albumen, and frequent baths. This feature is still a subject for observation.

Young children were affected in much larger proportion than older children.

A high degree of atmospheric humidity coupled with a low barometer was often associated with albuminuria.

Ulcerative stomatitis occurred in twenty-seven cases. They varied from mild surface ulceration to extensive sloughing of cheek and gum. All the cases recovered, but some required radical treatment. If the disease does not almost at once yield to mild measures, fuming nitric acid, if necessary, under chloroform must be applied. If neglected for even a few hours irreparable mischief may ensue. The affection is contagious.

Nephritis supervened in twenty-six cases. Twenty-three of the cases occurred within the first three weeks of illness,—and therefore, while the patient was still in bed, dropsy was not a prominent symptom. All cases presented hæmaturia. Convulsions occurred in two cases, one of which was fatal. All the others recovered. The incidence of nephritis was, therefore, very small, which is in marked contrast with the statement which appears in the article on scarlet fever in "*Roberts's Theory and Practice of Medicine*," 1890,—viz., that the most frequent and important complication, and the one that requires special notice, is acute nephritis and its consequences.

Rheumatism occurred in twenty-six cases. Transient pains unaccompanied by fever, and objective joint-symptoms, are not included in this list.

Scarlatinal rheumatism most frequently occurs at the end of the first or beginning of the second week, at a time when the rash is just disappearing and the temperature reaching normal. It is comparatively more frequent in adults and in older children, and shows but little tendency to affect the heart, pericardium, or pleura. Bronchitis occurred in twenty cases. It was mild in character. Conjunctivitis of a mild muco-purulent type occurred in thirteen instances. It was mainly an affection of convalescence and readily yielded to treatment.

Secondary tonsillitis sufficient to cause a rise of temperature occurred in twelve cases.

It is noted that diphtheria did not appear among the scarlatinal convalescents. The author believes that the prevention of this complication is only a matter of locality and ward hygiene.

Relapses or recrudescence of the disease was seen in six instances. These are believed to be genuine recurrences. Three occurred on the twelfth, fourteenth, and seventeenth days; two in the fifth week, and one in the seventh.

The period and extent of desquamation varied in different cases within wide limits. In some cases, mainly in adults and very young children, it was completed in less than six weeks. It was prolonged in others to twelve, or even sixteen weeks. The average detention in hospital was slightly over nine weeks. In the large majority of cases no special treatment was indicated, symptoms being dealt with as they arose. In those with severe throat and glandular affection, frequent syringing out of the fauces and nares with a solution of chlorine or boracic acid was most useful, serving to clear away offensive secretions and lessen discomfort. In restlessness and sustained pyrexia, cold and tepid spongings were useful to produce sleep; and sulphonal in some cases proved a valuable hypnotic.

The cases were treated in bright and well-ventilated wards, maintained at a temperature of 56° to 60° F., the average cubic space per bed being about two thousand feet.

The diet during the pyrexial stage consisted of milk, beef-tea, eggs, and ice, after which a more solid diet of milk-pudding, bread and butter, with fish or meat, was given, and at the same time baths were ordered on alternate days. Stimulants were only employed in severe cases,—usually in forms of brandy or champagne. Uncomplicated cases were allowed to get up at the end of the third week. Flannel was worn next to the skin during convalescence.

With reference to the treatment of scarlatinal nephritis, the author is not in the habit of withholding eggs as an article of diet when the secretion of urine has become fairly established, especially if there be much loss of albumen and consequent anæmia. The only drugs used are perchloride of iron and purgatives freely. In this series of over one thousand cases only one death occurred from scarlatinal nephritis, the child being admitted with nephritis, and dying a few days after in convulsion.

(It is not possible within the space of an abstract to give a complete summary of this valuable article.)

Spencer: On Visceral Hemorrhages in Still-Born Children; an Analysis of One Hundred and Thirty Necropsies. (*The Lancet*, June 20, 1891.)

A paper giving a detailed account of a consecutive series of one hundred and thirty necropsies, on fresh, mostly still-born,

foetuses, was read at a meeting of the Obstetrical Society of London.

The causation of the hemorrhage was discussed, and the following conclusions reached :

1. In children still-born, or dying shortly after birth, congestion or œdema, and hemorrhages, are usually found in various important viscera.

2. These hemorrhages occur in cases delivered either naturally or by version, or by forceps, through normal or abnormal pelvis; in primiparæ and multiparæ; with large and small children; in "easy" and difficult, rapid and prolonged labors.

3. These hemorrhages are, however, most frequent and severe in children subjected to much pressure by the parturient canal, or instruments, or the hand of the attendant, especially when delivered by the lower extremity.

4. Cerebral hemorrhage is more frequently found in still-born children delivered by the forceps than in those born by the breech, and in these latter more frequently than in those born naturally by the head.

5. Hemorrhage into most of the other viscera is more frequently met with in pelvic than in cephalic presentations.

6. These hemorrhages and the accompanying injuries are in many cases the cause of still-birth, and when not immediately fatal may be followed by the gravest consequences.

7. They are most likely to be avoided by preventing premature rupture of the membranes, by artificial dilatation of the parturient canal (when necessary), by restricting the employment of version and other artificial manipulations to urgent cases, and by preferring cephalic to podalic version in cases suitable for the former.

8. The use of the forceps should be absolutely limited to cases in which there exists some pressing danger to mother or child, and it should never be employed merely to shorten the time of labor.

9. In breech presentations, examinations of the genital organs of the child should be carefully avoided during delivery. As soon as the child's limbs are born they should be wrapped in a thick layer of antiseptic wool. If traction be necessary it should be made over wool wrapped around the child's limbs or pelvis. It should never be made by the hand around the child's waist.

10. In delivering the after-coming head, care should be taken that the sterno-mastoid muscles are not unduly stretched or pressed upon. When the after-coming head is in the pelvis, where there is even slight difficulty, resort should be had to the forceps.

In the discussion following, Dr. Herman thought it justifiable to use forceps merely to shorten labor, in certain cases.

Dr. Spencer, in reply, thought the use of forceps could not be decided by an appeal to practice, or by the statistics of still-birth. He thought that many slight muscular or mental disabilities in after life might have their origin in these injuries.

Makins: Two Cases of Middle-Ear Disease, complicated by Thrombosis and Suppuration of the Lateral Sinus. (*The Lancet*, June 6, 1891.)

CASE I.—Aged eleven years. The patient had measles six years ago, and for the last twelve months has been attending in the ear department for middle-ear disease. Three weeks ago a swelling appeared beneath each ear. She became delirious at night. A free incision was made behind the right ear, evacuating a large quantity of pus. A gouge was then applied to the mastoid process, when the bone gave way like an egg-shell, laying open the inferior fossa for an extent of one inch, and exposing the dura mater to a like extent. The whole uncovered portion of the latter was covered with granulations, and the sigmoid sinus was undistinguishable. Bearing in mind the history of the repeated rigors, it was thought advisable to ligate the internal jugular vein. Dissection in the line of the vessels exposed the carotid and vagus, but no trace of the vein could be found. A director, however, could be passed readily in the line of the vessel to the base of the skull. It was therefore assumed that suppuration of a thrombus had probably destroyed it, and the wound was closed after the introduction of a drain. The swelling on the left side was simply incised.

Double optic neuritis was reported on the 8th, but passed off twelve days later. The child made a good recovery, and the wounds were closed in a month.

CASE II.—A female, aged twenty-seven years. When two years of age she had scarlet fever. As long as she could remember she had had a discharge from the left ear. One week before admission acute symptoms began. She suffered from rigors. Temperature went as high as 105° F.

Left mastoid trephined; bone very dense; no cavity found. A small part of the lateral sinus was exposed. The patient continued to have rigors and a temperature of 105° in spite of reopening of the wound and removal of more inspissated pus.

The roof of the tympanum was explored without discovering any sign of inflammatory mischief. The sigmoid sinus was then examined: it looked greenish in color, and though soft did not pulsate.

The jugular was ligated before the sinus was incised. The sinus was now exposed freely by cutting away more bone, and in the process about a drachm of pus was let out. The sinus was found to contain breaking-down clot.

Following this there was a free discharge of pus for a few days. The temperature gradually became normal, and the subsequent progress was uninterruptedly good. The diagnosis of the existence of pyæmia in the cases rests simply on the occurrence of rigors.

It is interesting to contrast the condition of the mastoid process in the two cases.

A recollection of the probable condition in the two classes of cases is of the highest importance when surgical interference is needed, since in the one too great care cannot be exercised in the treatment of thinned bone, any excess of force being dangerous, while in the other the density of the bone forms a considerable difficulty in the operation technique.

In Case I. the condition of the sigmoid sinus and the internal jugular vein was of extreme interest, since the state of things found seemed to point to an effort of nature to bring about exactly the same result as that aimed at by ligature of the jugular vein by the surgeon.

Two points of special clinical interest were offered by the second case. The one was the late occurrence of optic neuritis, usually so useful a diagnostic symptom in these cases, and the other was an abundant frothy mucous expectoration. This latter came on suddenly after the first operation, was very free, and lasted until six days after the final operation. It was accompanied by no coarse signs in the lungs, and there seems no doubt that it did not depend on an infarct; but its occurrence might be explained by irritation due to the involvement of the vagus trunk in the inflammation, spreading from the mastoid cells and in the line of the thrombosed sinus to the jugular foramen.

Joynt, H. Noble: Malignant Scarlet Fever. (*The Lancet*, June 6, 1891.)

Malignant scarlet fever is defined as an acute form, characterized by profound disturbance of the central nervous system by the poisonous effects of the scarlatinal virus unaccompanied by marked inflammatory lesions, and usually proving fatal within a week.

Clinically, three well-marked varieties may be noted: the asthenic, the aginal, and the congestive.

These are discussed and their characteristics described at length. In the asthenic variety the rash is badly marked. It

is scanty or suppressed, distributed in irregular blotches; or again it may consist of dark maculæ resembling typhus fever. Purpuric blotches and petechiæ are frequent.

The anginal variety differs from the asthenic in having the throat symptoms more conspicuous. There may be ulceration and the formation of a diphtheritic membrane. The mouth is foul, and the submaxillary glands enlarge to a moderate degree. It differs from true anginal fever in that there are no secondary inflammatory or plastic lesions such as adenitis, cellulitis, otitis media, or other extensive ulcerative changes in the pharynx or nasal passages; moreover, death is due to the toxic effects of the scarlatinal poison on the nerve-centres, and not to exhaustion from suppuration, septic infection, or inflammatory obstruction of vital organs.

The third, or congestive type, presents some remarkable differences from the foregoing. The eruption is very characteristic. The whole body is covered with an eruption often likened to the color of a boiled lobster. About the fourth day the skin becomes dry, and desquamation appears about the same time. The skin peels off in sheets. In cases that recover the skin may be cast off twice or thrice in the first fortnight. This variety is not so fatal as the other two.

These descriptions are based on a personal observation of over one hundred malignant cases of scarlet fever. They are characterized by an intense poisoning of the various centres in the brain and medulla, as shown by the high temperature, delirium, rapid weak heart, tendency to syncope, irregular respiration, constant vomiting, vaso-motor disturbances, all resulting in great prostration, a comatose condition, and death. The indications for treatment are support and stimulation.

Steven: Acute General Peritonitis in a Child associated with Vulvo-Vaginal Catarrh. (*The Lancet*, May 30, 1891.)

The patient was a female child, aged four years.

The child took her breakfast as usual, and, apparently, was as well as ever. Two hours later she began to complain of a "sore belly." During the afternoon the pain became very severe. At 6 P.M. the child was pale and somewhat collapsed; there was tenderness on the right side of the abdomen, the temperature was 104° F., the pulse was small and almost uncountable; there was no cough, and the urine appeared normal. Fomentations were applied, and a cooling mixture containing drop-doses of digitalis was given. The next morning the child was no better, and during the afternoon she became exceedingly restless and delirious.

At this time the writer saw the patient in consultation with Dr. Headrick. She was then very collapsed; the lips were dry, and she was continually trying to moisten them; there was great restlessness and occasional retching. The pulse was 120, the tongue was coated, and the face was extremely pale. The abdomen was uniformly distended, and the percussion was tympanitic all over. Considerable expression of pain was elicited on pressure beneath the umbilicus and over the right side of the abdomen. During the examination a profuse, sour-smelling, pale stool, mixed with mucus, was evacuated, and at this time a distinct leucorrhœal discharge from the vulva was noticed. The mother admitted that this had been present some time, but that little attention had been paid to it.

The writer thinks that the vulvo-vaginal catarrh was in all probability the cause of the serious peritoneal condition. There was no history of previous intestinal or peritoneal trouble, and the copious motion of the bowels negated the idea of organic obstruction. The child died the next day, forty-eight hours from the beginning of the attack.

She gradually became exhausted, and towards the end livid. Convulsive attacks supervened shortly before death, and the abdomen became more distended.

A post-mortem examination could not be obtained.

In conclusion the writer refers to the fact that his opinion has been corroborated by the experience of other physicians. The paper of Dr. Francis Huber (*ARCHIVES OF PEDIATRICS*, vol. vi., 1889) is referred to, in which he reports a case of acute peritonitis following vulvo-vaginal catarrh in a girl seven years old, simulating a perforation of the appendix. In this case laparotomy was performed, and there was a necropsy, during which the cause was traced.

The lesson that these cases teach is that we should always have in view the possibility of this very serious complication in dealing with the vulvo-vaginal catarrh of childhood.

Tetanus Neonatorum at St. Kilda. (*Glasgow Medical Journal*, August, 1891.)

St. Kilda is a small island of the Hebrides group on the west coast of Scotland. It lies far out at sea, and the population consists of but eighteen families. For a considerable time it has been most strongly afflicted. Not more than one out of every four or five children born survives, the vast majority succumbing to this terrible malady. The trismus generally appears at about the fifth or sixth day, and coincides in its commencement with the separation of the umbilical cord. At birth the children look plump and healthy, and, so far as

can be seen, no abnormality is present at the umbilicus either before or after separation of the cord. The illness begins with a low, whining cry, and usually terminates in death within twenty-four hours. The child is seized with a series of opisthotonic convulsions, in which the fists are clinched, the jaws tightly closed, and the spine curved. The fits recur every quarter of an hour until death from exhaustion takes place.

The natives are not robust. They live in small, dirty, ill-ventilated houses, with every condition favorable to the development of the disease.

Carpenter, George: Tuberculosis of the Choroid. (*British Medical Journal*, July 11, 1891.)

Four cases of this character are reported with illustrations. The patients were all under three years of age, and the diagnosis of general tuberculosis was confirmed in each case by autopsy. Tubercles of the choroid are protean in their characteristics, and are found under several guises. From choroidal atrophy, their proximity to the optic disk, and the fact that they are slightly raised, taken together with their often isolated character, ought to be sufficient for diagnosis.

Lœffler: The Treatment of Diphtheria. (*Gaz. Méd.*, June 13, 1891.)

Before the discovery of the pathogenic agent in producing diphtheria, the subject of treatment of this disease was much more obscure than it now is. The experiments upon cultures of the bacillus in the laboratory have furnished rules and methods for the guidance of the clinician. Two factors are to be considered in the struggle with the bacillus of diphtheria,—first, the migration of the bacilli into sound tissues must be prevented or regulated by suitable medicaments applied to the mucous membrane; second, accumulations of bacilli in the superficial portions of false membranes must be destroyed.

Lœffler has experimented with various substances as follows, the laboratory conditions as to temperature and quality of the culture media being made to conform as nearly as possible with the conditions of the human body:

Sublimate in solutions of one to ten thousand instantly destroyed the germs strewed upon the surface of the culture media. The greater number of them were also destroyed by one to twenty thousand solution. A one to one thousand solution of sublimate was required for twenty seconds to destroy bacilli which had penetrated the deep portions of the culture media.

Cyanide of mercury in one to ten thousand solution almost

instantly destroyed many of the germs upon the surface of culture media. All of them were destroyed by solutions of one to three thousand. Solutions of one to one thousand in contact with a bacillus culture for seventy seconds did not sterilize it throughout its entire extent. This result was obtained with solutions of one to two hundred.

Nitrate of silver in one to one thousand solution, after contact for ten seconds, sterilized a culture medium at its surface for a day. A one to one hundred and fifty solution was required to destroy the bacilli, and only after contact for twenty seconds were colonies of the bacillus destroyed.

Chloride of silver one to seven thousand five hundred and hyposulphite of soda one to ten thousand in combination were very destructive to the bacillus.

Permanganate of potash even in five-per-cent. solutions was ineffectual.

Chlorate of potash one to twenty, lime-water in saturated solution, oxygenated water one to one hundred, sulphuric acid one to twelve and a half, formic acid one to one hundred, lactic acid one to one hundred, were all ineffectual after ten seconds' contact.

Chlorate of potash one to twenty was also ineffectual after contact for sixty seconds.

Iodine in watery solution was useless.

Iodine five parts, iodide of potash ten parts, and water three hundred parts sterilized cultures in twenty seconds.

Bromine in one to one hundred watery solution destroyed germs upon the surface, but a two-and-a-half-per-cent. solution for twenty seconds was necessary to completely sterilize the cultures.

Chlorine-water—nine-thousandths gramme of chlorine to a cubic centimetre of water—destroyed germs upon the surface after ten seconds of contact. Undiluted chlorine-water sterilized cultures in twenty seconds.

Chloride of lime in concentrated solution was very effective.

Trichloride of iodine one to one thousand destroyed the germs upon the surface of the culture medium in ten seconds.

Absolute alcohol and ether, two parts of the former and one of the latter, with one part of water, produced the most positive effects instantaneously. But either of the substances used separately failed to sterilize in twenty seconds.

Alylic alcohol was only feebly germicidal.

Benzyllic alcohol and chloroform sterilized in ten seconds.

Carbolic acid one to one hundred was ineffectual. Development of the germs was momentarily arrested by three- and four-per-cent. solutions. A two-per-cent. solution, to which

was added twenty to forty per cent. in volume of alcohol, was quite effective, and stronger solutions were still more so.

Lysol one to fifty sterilized in ten seconds, the germs being strewn upon the surface of the culture media, but even one to twenty solution failed to sterilize the solutions completely.

The creasols gave results similar to those produced by carbolic acid.

Salicylic acid and resorcin gave only poor results.

Hydrochinone and benzoate of quinine gave fairly good results.

Various essential oils had a decidedly germicidal action, also the hydrocarburides anisol, phenetol, toluol, and benzol.

Many of the substances mentioned by Loeffler could not be used clinically on account of their toxic properties, but there are others which deserve a trial both for applications and gargles.

As means of prophylaxis, those who attend cases of diphtheria should use gargles of one to ten thousand or one to fifteen thousand of sublimate or one to eight thousand or one to ten thousand of cyanide of mercury; chloroform-water, chlorine-water one to eleven hundred, thymol one to five hundred with twenty per cent. in volume of alcohol, are also useful agents as prophylactics. Gargles of these substances should be used every three or four hours.

For inhalation one may use essence of lemon, oil of eucalyptus, anisol, phenetol, benzol, or toluol. Metallic tubes containing cotton impregnated with these substances may be introduced into the nasal fossæ and retained as long as is advisable. If the diphtheritic process is actually present the gargles referred to should be used every hour or two, in addition, gargles should be used every three or four hours with solutions of sufficient concentration to sterilize cultures of the diphtheritic bacillus, as stated in the foregoing paragraphs. Local applications should be made at equal intervals of carbolic acid one to twenty, bromine one to fifty, or chlorine one to one hundred.

A. F. C.

Oertel: The Diphtheritic Poison and its Mechanism of Action. (*Gaz. Méd.*, June 6, 1891.)

The treatment of diphtheria should have a scientific basis in the bacteriological discoveries concerning the etiology of the disease. Oertel has inoculated the muscular tissue of animals with diphtheritic membrane, and has seen them die in thirty or forty hours. The lesions found after death consisted in hemorrhagic inflammation of the muscles, infiltration of the viscera with round cells, and hemorrhages into the serous

membranes. The bacilli of diphtheria were not found in the tissues and organs of the animals experimented upon. Hence Oertel concluded that in cases of generalized diphtheritic infection the virus is not found in the tissues and organs by the pathogenic bacteria; that it comes from without, and that having entered the organism it is reproduced by fermentation, by fission, and by the metamorphosis of certain organic combinations. The effects of the poison are always the same in character, hence there cannot be a local infection and a general infection. The manifestations of diphtheritic poisoning vary according to the quantity and the intensity of the virus which has impregnated the organism, also according to the situation and the structure of the organs involved. Everywhere the first effect consists in the death of the cells. The second consists in the formation of hyaline matter at the expense of the cells, the connective tissue, and the muscular substance. Wherever the action of the diphtheritic poison is incomplete, one sees inflammatory reaction. In the superficial tissues this reaction follows migration of leucocytes into the epithelial cells, and poisoning of these elements. Analogous effects are produced in the deeper structures. When a focus of necrosis is contiguous to epithelium, the contents of the latter are diverted to the surface and become a false membrane. The return of the tissue to a healthy condition is due to elimination of all necrotic matter, and to an exudation of fibrinogenous lymph. When the virus is carried to the deeper portions of the mucous and submucous tissue by the cells suspended in the fluids, it causes other foci of necrosis, which fuse with the superficial ones and gradually infiltrate the tonsils, uvula, and velum palati. If no specific bacilli are developed in these false membranes, the virus, in consequence of chemical changes which take place in the tissues, will quickly lose its pathogenic activity. In the cervical and bronchial glands the virus produces the same necrotic changes as in the epithelium and mucous membrane of the pharynx. The same thing occurs in the spleen, stomach, intestine, and mesenteric glands. In cases in which the disease had followed an acute course, the lungs, heart, liver, and kidneys showed no characteristic changes. They were simply the seat of inflammatory, hemorrhagic foci, and collections of round cells. From the penetration of the virus into the circulatory current, the structure of the vessels was changed, and there were characteristic hemorrhages into the pleura, pericardium, peritoneum, the serous covering of the liver, etc.

Oertel's statements relative to the organic nature of the diphtheritic poison have been confirmed by Loeffler, Roux and

Yersin, and Brieger; Roux and Yersin have proposed the carbolic acid treatment upon the basis of the discovery of the diphtheritic poison. Oertel approves of this substance as a means of treatment, only he prefers to use it in the form of inhalations, a five-per-cent. solution being inhaled every hour or every two hours. By this means the entire mouth may be impregnated and disinfected, and the specific bacilli at the surface of the mucous membrane destroyed. A. F. C.

III.—SURGERY.

Brokaw, A. V. L.: Extirpation of the Kidney for an Enormous Myxo-Sarcoma in a Child aged Three Years and Eight Months. (*Phila. Med. News*, 1891, lviii. 313.)

The patient was a boy, aged three years and eight months. He had complained for the past five months of pain and general discomfort in the right side of the abdomen. Just beneath the free margin of the ribs there appeared a tumor, which filled entirely the lumbar and half of the umbilical region, extending from one and a half inches above the anterior superior spine of the ilium to the free margin of the liver, and on the right side it extended nearly to the middle of the left rectus muscle. It gave a peculiar elastic, almost fluctuating, sensation when palpated.

The tumor was removed through an incision, extending from the margin of the quadratus lumborum muscle to midway between the last rib and the crest of the ilium. Firm adhesions had formed in almost every direction around the tumor, so that an opening was torn in the peritoneum. The pedicle, composed of the blood-vessels and ureter, was tied with a modified Staffordshire knot, and after washing out the abdomen, the peritoneum was closed with a continuous catgut suture, and the muscles and skin were approximated with silk sutures. The wound was dressed with iodoform gauze and bichloride gauze, and then covered with absorbent cotton. Although the operation lasted only twenty-three minutes, the shock was severe, and the patient did not rally completely for four or five hours. The wound healed by first intention and convalescence was rapid.

For a period of two months, he was free from all symptoms of the original trouble, when he began to manifest some peculiar gastric disturbance, which seemed to indicate a metastasis. He died two and a half months after the operation. A metas-

tasis to the liver and stomach had taken place, and the tumor almost equalled in size the original growth in the extirpated kidney.

Anderson, J. A.: Intubation versus Tracheotomy. (*Occidental Med. Times*, 1891, v. 181.)

As to the comparative merits of intubation and tracheotomy I hold very pronounced views. I will take any case that can be saved by the latter operation and guarantee its recovery with a tube. There is absolutely nothing that the cutting operation does which will not be accomplished by intubation better and surer. I have a record of twenty-four cases of tracheotomy, with eleven recoveries, so that I know, from a very successful experience with this operation, what it can and what it cannot accomplish. With this table, which I present, with twenty-seven consecutive cases of intubation with fourteen recoveries, and with twenty-three recoveries in my entire series of sixty-eight cases, or over thirty-three and a half per cent., I should look upon a return to tracheotomy as I would to a resort to the primitive "belly squeezing" of a California Indian midwife. It is a superseded operation, a once necessary barbarism left behind in the evolutionary march of modern surgery. In several of my diphtheritic cases, the tube was inserted as a means of euthanasia, when recovery was hopeless from the degree of blood-poisoning present. No tracheotomist would have operated, or have been justified in doing so, had he contemplated this course. But the quick, easy, painless insertion of the tube enabled the little sufferers * to pass away without the horrible struggling accompanying their strangulation, and the parents were so grateful for even this boon that the tube was invariably inserted. No case was refused because of its hopelessness, for my object was to save life, if possible, and if not, to alleviate suffering, and not to make a brilliant record. Had I refused hopelessly blood-poisoned diphtheritic cases, the percentage of recoveries would have been very much greater, and if I had had the experience in my earlier cases of the after-treatment that I have since acquired, it would have been still higher.

Judson, A. B.: The Prevention of the Short Leg of Hip-Disease. (*Journal Amer. Med. Assoc.*, 1891, xvi. 510.)

The deformities of hip-disease are caused by the patient's efforts to so place the limb that it shall be the least disturbed by, and afford him the most convenience in, his customary attitudes and movements. They are (1) abduction; (2) adduction and flexion; and (3) extreme adduction and flexion.

The second position is practically by far the most important, and is the only one considered in this paper. It is caused by the patient's elevating that side of the pelvis in order to take the limb off the ground, and to keep the affected limb out of the way of the well one, which is on the ground a longer time than the affected limb, and does most of the work of progression. The limb is maintained in the chosen position by reflex muscular contraction, which does not immobilize the joint, but fixes it in such a manner that changes in its position are readily made by the application of gentle but persistent force. It is proposed, therefore, to induce the patient wearing the hip-splint, which protects the joint from the violence of walking, to divide the time on the ground equally between the two feet, or rather between the foot of the sound side and the ischiatic crutch on the affected side, with the expectation that adduction and flexion will be wholly or in part reduced, when the affected limb makes repeated efforts to reach the ground and do its share in locomotion. It is believed that the patient can be induced by precept and drill to adopt this manner of locomotion with the result indicated, a belief which is sustained by the observation that patients led by accident to walk in this way have recovered with a good position of the limb, and by the results of the adoption in practice of this method of preventing deformity.

Parker, W. R.: Induration of the Sterno-Mastoid in New-Born Children. (*British Med. Journal*, June 20, 1891.)

The author has seen two cases of this affection which he reports. The first case was that of a female child delivered by instruments, some force being required in delivering the head. It was a dorso-anterior breech presentation. Twenty-six days after birth a marked induration was observed in the middle of the right sterno-mastoid, which drew the chin over to the left shoulder. Both mother and nurse were confident that it did not exist on the previous day. After a few weeks' gentle friction the abnormality was undiscoverable.

In the second case considerable force was used in delivering the head, it being a breech presentation. Twenty days later an induration was noticed in the right sterno-mastoid, pulling the chin well over to the left shoulder. It disappeared after six weeks.

In both these cases there was doubtless sufficient force used in delivery to tear some fibres of the sterno-mastoid, causing inflammatory effusion with subsequent cicatricial contraction. In neither case was there the slightest suspicion of syphilis or other constitutional taints.

Beatson: A Case of Spina Bifida with Talipes Calcanæus. (*Glasgow Medical Journal*, May, 1891.)

The child lived six months. The spina-bifida was in the lumbar and sacral regions, and had been injected with Morton's fluid. The puncture seemed to heal, but ten days later the child died. The tumor was about the size of a large orange, and sessile, but gradually became pedunculated and the walls much thinner. Previous to the operation the head had presented a very hydrocephalic condition, but owing to the leakage this had gradually disappeared, leaving the bones quite collapsed.

There was an inguinal hernia on both sides, and the rare condition of talipes calcaneus. As regards the pathology of club-foot this would favor the muscular or musculo-nervous theory, which is, in the author's opinion, preferable to the osseous view.

Hellier: Complications of Mumps. (*British Medical Journal*, June 20, 1891.)

The author reports the case of a girl, fifteen years of age, who developed partial paralysis of the left side of the face after an attack of mumps, involving the parotid and sub-maxillary glands of both sides. The mouth was distinctly drawn to the right, and the left orbicularis did not contract naturally. The attack was transitory, clearing up in about three weeks. It might be expected that such paralysis would be common, owing to the intimate relations of the portio dura and the parotid gland, but as a matter of fact it is extremely rare.

Workman: Post-Mortem Examination of a Large Sacral Tumor. (*Glasgow Medical Journal*, May, 1891.)

The tumor was large and occupied the gluteal and perineal regions, and was present at birth. At places it was elastic from the presence of cysts. Why this region should be the seat of such growths, and why they should be more common in females, as in the present instance, is not known. Great diversity of opinion has been expressed as to their pathology. Some have thought them to be due to a degeneration of Luschka's gland. Sutton has recently associated them with the post-anal gut for the following reasons:

1. They contain formed tissues derived from the three germinal layers.

2. In the situations where these tumors are found these three layers are brought together into continuity, at least temporarily.

3. These temporary unions are associated with the existence of a canal and passage, which exists for a time and then disappears.

4. The neurenteric passage between the central canal of the cord and the alimentary canal is the cause of these growths.

Other observers have not considered this post-anal-gut theory tenable.

As regards the classification of these tumors, the author believes the best one is that which recognizes the following groups :

1. Attached foetuses.
2. Congenital tumors with foetal remains.
3. Congenital cystic tumors of various kinds.
4. Congenital fatty, fibrous, and fibro-cellular tumors.
5. Caudal excrescences.

The leading features of the post-mortem examination were as follows :

1. In the lungs and liver were found numerous secondary deposits of soft consistency and of varying size.

2. Below the neck of the bladder the urethra communicated with a large cavity, with which the rectum and the vagina also communicated. In the case of the rectum, the opening was three inches above the anus.

3. The tumor sprang from the anterior wall of the coccyx, and lay between it and the rectum, though it descended to a great extent between them.

4. Microscopic examination showed the presence of skin, thyroid gland, rudimentary muscle, fat, and cancerous material.

Escherich : Intubation in Croup. (*Rev. Mens. des Mal. de l'Enf.*, April, 1891.)

After discussing the advantages and disadvantages of tracheotomy and intubation, and comparing the statistics of the two operations, the author arrives at the following conclusions :

1. Intubation cannot completely take the place of tracheotomy ; in cases in which one can choose between the two, the interests of the patient will usually demand tracheotomy.

2. The value of intubation cannot be determined from statistics. Each case should be studied with reference to its own characteristics and the localization of the disease.

3. The advantages of intubation are the ease and rapidity with which it can be done, the ability to dispense with anaesthesia and skilled assistants, absence of an external wound,

and short duration of treatment. The disadvantages are necrosis from compression of the laryngeal mucous membrane, frequent entrance of food into the respiratory passage, frequent and painful attacks of cough, difficult expectoration of membranes and secretions, and deficient pulmonary ventilation, as compared with tracheotomy.

4. Tracheotomy should be preferred to intubation when the diphtheritic process is rapidly extending to the bronchi or involves them from the beginning, when the patients are very young and the muscles of expiration only slightly developed, when the disease has a septic character or has followed some other debilitating disease.

5. Intubation is indicated in cases in which the process is limited to the pharynx and larynx and does not show any septic characteristics.

6. If at the end of five days it is still improper to remove a tube which has been introduced, if alimentation becomes difficult and there is a probability that the disease has extended to the bronchi, the tube should be removed and tracheotomy should be performed.

A. F. C.

Lannelongue: Varieties of Osteomyelitis during Childhood. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

The author reports thirty-five cases of osteomyelitis, of microbic origin, seen by him within two years. Of these, twenty-one were caused by staphylococcus aureus, seven by staphylococcus albus, three by streptococcus pyogenes, two by pneumococcus, and two by unknown varieties of microbes. The microbic origin of this disease has been studied by Pasteur, Kraske, Gaugolphe, and Rodet. It is now known that the disease may be caused by different varieties of microbes as stated in the foregoing. The question arises whether these etiological varieties correspond to differing clinical forms. The type which is ordinarily described is due to the staphylococcus. Osteomyelitis from streptococcus can be distinctly recognized. It begins with a temperature of 39° to 40° C., but the fever does not remain high as in osteomyelitis from staphylococcus, suggesting rather the oscillations of temperature in pyæmia. Swelling and abscess may follow quickly, the swelling being without line of limitation. The skin assumes an erysipelatous redness, then there is the redness of angioleucitis, then a painful adenitis, which is acute and which seldom occurs in osteomyelitis from staphylococcus. The metastases in the disease which is due to streptococcus are articular, synovial, and serous, while those from staphylococcus are visceral, and it is only when the bone is attacked that the

joint is involved by continuity. Another fact in connection with the staphylococcus variety is that the patients are often young, perhaps new-born, and in the latter case one concludes that the mother has suffered with puerperal fever. The streptococcus is less liable to attack bony tissue, hence it causes fewer sequestra and denudations of the epiphyses. If there are no complications which are due immediately to the virulence of the agent, and the patient does not die in the acute period, the local cure will be much more prompt and much more certain than in osteomyelitis from staphylococcus. Hence the therapeutic conclusions that the soft parts must be extensively removed, the bony tissue little if at all. In osteomyelitis from pneumococcus the author found the local bony lesions less extensive than in the streptococcus disease, but there was suppurative arthritis in the "knee or in the hip." The bony lesion involved the epiphyseal region.

A. F. C.

Iscovesco: Epiphyseal Fractures in the Treatment of White Swelling (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

The author has observed epiphyseal fractures in two cases of coxalgia, and in two cases of white swelling of the knee, which were produced during attempts at treatment of the joint. He draws the following conclusions:

1. In certain cases of chronic articular disease there is true softening of the contiguous epiphyseal cartilages.

2. In the four cases referred to the children were under ten years of age.

3. In none of the cases did the fracture of the epiphysis appear to affect the prognosis unfavorably.

4. When this accident occurs it is necessary to treat the limb by immobilization with extension in a favorable position.

5. In the cases referred to, not only did the fractures undergo favorable evolution, but they seemed even to have a favorable influence upon the evolution of the articular disease, so that it is an open question whether osteoclasia of the contiguous joint might not be a favorable adjunct in the treatment of white swelling.

A. F. C.

Lannelongue: Craniectomy in Microcephalous Children. (*Rev. Mens. des Mal. de l'Enf.*, May, 1891.)

The author's paper is based upon an experience of twenty-five cases. Examination of the microcephalic cranium shows an advanced state of the sutures and narrowness of the fontanels. In one case, a new-born infant, the fontanels were

closed at birth. It may, therefore, be said that in microcephalia there is early ossification of the sutures, and since the cranium is then rigid, cerebral evolution will necessarily be arrested. In certain cases of this condition there may be ventricular dropsy, cerebral sclerosis, premature synostosis and hyperostosis of the cranium. Other morbid conditions which are to be modified by craniectomy are either congenital or conditions which appear during the first years of life. Compression of the head during parturition is supposed to result in idiocy or tardy development in some cases. In others, the head may be immoderately compressed prior to parturition, especially if there is an insufficient supply of amniotic fluid, and idiocy may also be a consequence. In the latter class of cases there may be two depressions at opposite points in the cranium, one corresponding to the point where the uterine wall exerted compression, the other at a point where the foetal cranium pressed upon some portion of the body, for example upon the shoulder.

Meningeal hemorrhage in young children, especially when resulting in hæmatoma of the convexity of the brain, circumscribed pachymeningitis and serous cysts following the formation of a blood-clot may be relieved by craniectomy. This result may also be obtained in certain cases of hyperostosis due to hereditary syphilis, and certain forms of hydrocephalus.

The pathological anatomy in these conditions is not yet well defined. It would also seem that contraindication to surgical interference was furnished by cases of cerebral atrophy of vascular origin, by diffuse sclerosis, and by encephalitis. Nevertheless it may possibly be shown that such a view is erroneous, and that interference even in such cases may be tolerated. The author employs both the linear and flap methods in craniectomy, preferring the latter. Linear craniectomy is made along the length of the superior longitudinal sinus, and may be prolonged across the coronal suture, upon the motor or Rolandic zone, towards the centre of Broca. By flap craniectomy the author refers to an operation in which there are flaps made which are adherent by a bony base. The flap may include only a single bone as the parietal or frontal, or it may include two. The flaps may have the form of a U, of an inverted V, of a rectangle, of a horseshoe, or of a T. The loss of substance in such an operation is from eight to twelve millimetres in length, and the average duration of an operation is forty to forty-five minutes. The wound having been made, the crown of the trephine is introduced at one of its extremities. If there has been pachymeningitis the dura mater may be incised and subsequently sutured. It is not necessary to

resect the periosteum. The author found, in autopsies upon two children who died less than two months after the operation from croup, that there had been no regeneration of bone from the dura mater. With regard to complications there is little danger from hemorrhage, the meningeal artery or its branches being easily detected. No difficulty need be experienced from hyperostosis of the cranium. In the author's twenty-five operations there was but one death, in three cases there was a moderate degree of suppuration, in no case was there any necrosis. The youngest child was eight months of age, the oldest twelve and a half years. There were thirteen boys and twelve girls. In most of the cases there was great improvement in the intellectual condition as the result of the operation.

This paper was discussed by a number of surgeons who had performed the operation, their opinions varying as to its value. One believed that much was to be hoped from it, and another thought that its value had been exaggerated, also that too short a time had intervened since the operation had been proposed to state with definiteness whether permanent benefit would be obtained.

A. F. C.

Beynes: Perityphlitis in Children. (*Gaz. Méd.*, May 23, 1891.)

The cæcum is fixed at the lower border of the large intestine, and is connected with the appendix by its mesentery. In children faecal matter readily penetrates it, and the anatomical condition may be said to predispose to appendicitis and to perityphlitis, with perforation. In almost all cases of perityphlitis in children it is the appendix which is perforated. The general causes which give rise to the condition are the same in children as in adults. But additional and not infrequent causes are tuberculosis of the mesenteric glands, abscesses following congestion and perinephritic abscess, with or without pyelonephritis. Among the local causes may be mentioned stagnation of undigested material, calculi of stercoraceous matter, biliary calculi, foreign bodies, gangrenous perforating appendicitis, and typhoid ulcerations of the closed follicles of the large intestine. The lesions of perityphlitis in children are those of pericæcal peritonitis, which may be serofibrinous with adhesions, and curable, but liable to be followed by recurrence; or it may be suppurative and with a tendency to result in general peritonitis. Perityphlitis may result without perforation of the appendix.

The symptoms at the beginning are vague; there may be a coated tongue, pain in the abdomen, vomiting, and fever.

Suppuration, as was shown by Grisolle, does not usually take place before the tenth or fifteenth day. The principal indications of such an occurrence are an exaggeration of the local and general symptoms and a tumor in the iliac fossa, which may show fluctuation. Percussion may give a note indicating the presence of fluid and gas. The abscess may open externally or into the cæcum, these two terminations including almost all cases. But the opening may take place in the peritoneal cavity, in the rectum, in the internal iliac artery, or the termination may be chronic peritonitis or pyæmia.

The most favorable termination is that in which the opening is exterior. The prognosis of this disease is more grave in children than in adults. In forty-six cases the mortality was thirty-nine, while in adults the mortality is about thirty per cent. General peritonitis frequently results, and if the patient recovers there frequently remains a deposit in the iliac fossa which predisposes to recurrences. If abdominal section is to be performed it should be done early in the disease.

A. F. C.

Southam: Ununited Fracture of the Tibia in a Child.
(*The Lancet*, June 20, 1891.)

Mr. Southam showed a specimen of ununited fracture of the tibia and fibula from a boy aged six years. When two years old the bones had been broken for the correction of a deformity due to bowing of the leg. The fracture was not repaired, and, though another operation was afterwards done, it remained ununited. Four years later, when he came under Mr. Southam's care, there was wasting and marked shortening of the leg, with complete absence of union at the junction of the lower and middle third. Two osteoplastic operations were performed at an interval of six months, bone grafts, taken first from the femur of a rabbit and afterwards from the foot of a healthy child, being inserted between the ends of the tibia. No union resulted; and the leg, being useless, was amputated. Examination of the bones after removal showed mere fibrous union. The grafts had disappeared.

Attention was directed to the rare occurrence of non-union after fracture in children.

Mr. G. H. Broadbent asked what had been done with the periosteum, whether it had been left on the grafted bone or had been detached, and suggested that it might be advisable to retain a large portion of it, even allowing it to project over the edges so as to allow of it being sutured to each end of the periosteum of the part operated on, so as to encourage the formation of bone.

Battle: Some Cases of Bone Abscess. (*The Lancet*, June 20, 1891.)

The five cases reported are examples of suppuration commencing in the interior of bone.

They are interesting from the contrast which they present, one to the other, in their symptoms, from the difficulty in diagnosis and treatment, and because it is not often that we are able to compare a similar series. The amount of pain to which the pus gave rise varied with the tension.

CASE I.—Aged fourteen years. There had been previous attacks of osteitis followed by necrosis. The suppuration was more acute than usual in central abscess of bone. The cavity occupied most of the head of the tibia and was bounded with hard bone. There was no granulation-tissue in the cavity, which was washed out with chloride of zinc (forty grains to one ounce), carbolic solution (one to forty), and plugged with strips of lint soaked in carbolic oil. The patient made a good recovery. The wound was entirely healed forty days after the operation.

CASE II.—Circumscribed abscess of lower end of tibia; trephining; primary union. A boy aged sixteen years.

This abscess presented the signs which we are accustomed to look for in chronic circumscribed abscess of bone,—localized paroxysmal pain of long duration, marked tenderness, and enlargement of the area affected. Further, there was the increased local heat, as proved by the surface thermometer, quite independent of any general rise of temperature.

It is possible that in this there is a means of rendering a more accurate diagnosis possible between the various localized bone inflammations and circumscribed abscess. The mode of treatment of the abscess cavity after evacuation of its contents is an advance on that in which the drainage-tube is used.

After the wound is closed union commences at once between the soft parts, and the aseptic clot which fills the cavity commences to organize.

CASE III.—Small abscess in shaft of tibia. Man aged twenty-two years. Family history of phthisis. Six years before noticed a thickening over upper part of right tibia. This remained stationary until five months ago. On admission there was found in the centre of the swelling a circular depression in the tibia as large as a half-crown, bounded by a sharp edge of bone. An incision was made and the cavity scraped out. The cavity gradually closed by granulation.

CASE IV.—Abscess in the lower end of femur, producing effusion in the knee-joint; operation; recovery. A boy, aged eleven years, was suffering at time of admission from caries of

the right os calcis of nine months' duration. There was a history of phthisis on the father's side.

The first symptom of knee-trouble was a dull aching but not severe pain. Then there occurred effusion into the knee-joint. There was tenderness over the inner condyle behind, and thickening over both. The popliteal space was explored. The incision was carried down to the bone, and a probe was pushed under the periosteum, when pus welled up. There was found a large cavity in the condyles. It is probable that the operation for this patient saved the limb, for had the contents of the abscess found their way into the knee-joint, nothing short of amputation would have been possible. It did not seem well to attempt primary union in this case, for there was a fear that if much exudation took place it would, if unable to escape externally, force its way to the knee-joint, and so establish a communication between the joint and the large cavity, a complication not unlikely to render the operation useless.

CASE V.—Abscess of the os calcis. Female, aged seventeen years, was admitted with a large swelling of left foot. This had been noticed for nine months. There was absolutely no pain from the commencement.

There was a large chronic abscess occupying the inner aspect of the posterior part of the os calcis. An incision gave exit to a quantity of pus, and on the surface of the bone was an opening leading into a cavity containing a caseous sequestrum, which was removed. The wound filled up slowly. The unusual thing about the case was the complete absence of pain, although much of the os calcis was destroyed and the place of the bone taken by pus and caseating products.

Pick : A Case of Intussusception ; Reduction by Inflation ; Continuance of Symptoms. (*The Lancet*, June 13, 1891.)

We seldom meet with the condition of bowel after intussusception which was found at the operation on this patient, and it is of considerable importance that a record of such instances should be made. The child was six months old. It was taken ill with vomiting, abdominal pains, tenesmus, and the passage of mucus and blood per anum. The child was admitted on the third day.

On the left side was a distinct sausage-shaped tumor, feeling about three or four inches long, and movable. Nothing abnormal was felt per rectum. Inflation of air was tried. As the air was introduced it could be felt distending the colon by the hand placed upon the abdomen. Suddenly the sausage-

shaped tumor seemed to melt away from under the fingers, and the air rapidly diffused itself over the whole of the abdomen. No relief from symptoms followed this apparent reduction.

Laparotomy was done sixteen hours later. The small intestines were found to be distended with air and congested. On tracing this part of the bowel, a piece was found about six inches long, which was completely contracted and empty, and looked as if it were paralyzed. The bowel below was empty and collapsed, but there was no sign of previous strangulation, neither congestion, change of color, nor roughness of surface. The large intestine seemed healthy, and no intussusception was found. The child died three hours afterwards.

Remarks.—The case is a good example of the success which attends inflation with inversion, as far as the reduction of the intussusception is concerned, and it seems difficult to understand why the child was not permanently relieved.

It seemed probable that the bowel had been invaginated so long that after its release it was unable to recover itself.

The operation of laparotomy was undertaken because it was believed that the invagination had not been completely reduced or that there was a second intussusception or some other cause of obstruction.

Bibliography.

AN INTRODUCTION TO THE DISEASES OF INFANCY. By J. W. Ballantyne, M.D., F.R.C.P.E., Lecturer on Diseases of Infancy and Childhood, Edinburgh School of Medicine; Lecturer on Midwifery and Gynæcology, Medical College for Women, Edinburgh; Physician for Diseases of Children, Cowgate Dispensary; Physician for Diseases of Women, Western Dispensary; Secretary to the Edinburgh Obstetrical Society; and late Senior Assistant to the Professor of Midwifery and Diseases of Women and Children in the University of Edinburgh. With colored and other Illustrations. Edinburgh: Oliver & Boyd, Tweeddale Court. London: Simpkin, Marshall, Hamilton, Kent & Co., Limited. 1891.

Any work which has been especially devoted to the study of the anatomy and physiology of infancy and childhood should be warmly welcomed by those who are interested in pediatrics. So little has been done in this branch of medicine in comparison with the same subjects in adult life, that it may almost be looked upon as a new field for investigation. About half the book is taken up with the results of the author's anatomical studies, and the other half with what is more commonly found in treatises devoted to diseases of children. The book consists of two hundred and

eight pages, with nine plates and fifteen wood-engravings. The value of the work is especially centred in the anatomical illustrations, which are represented lucidly by means of colored plates taken from frozen sections. These plates, with one exception to be spoken of later, are remarkably good, and in themselves make the book worth possessing to any one who wishes to study clinical medicine from an anatomical stand-point.

Plate VII. represents a dissectional view of the abdominal viscera in a new-born infant, with the liver drawn upward so as to show the position and form of the stomach. It is this plate, which unfortunately is the most prominent in the book, that we feel some exception should be taken to. It seems to us that the position of the stomach, which in the plate is practically transverse, is not what is usually found in the average infant, and that in this case it had either been forced into this position by traction, or that the author had happened upon an unusual subject. The author's own description of the infantile stomach is much more nearly correct than the position of the stomach as shown in the plate. The fact is now pretty well established that the stomach at birth is more tubular than in the adult, the fundus being but slightly developed. It is, consequently, even more vertical than in the adult, where also the long axis of the organ is more nearly vertical than transverse.

The importance of the lymphatic glands about the cæcum, as possible starting-points of inflammation, is so great, that it would seem as though a description of them could have well had a place in a book where the abdominal anatomy has been so thoroughly considered. The author, however, is of course the best judge as to which parts should be omitted, in order to elucidate and simplify the whole.

In the latter part of the book, which is taken up with questions of physiology and hygiene, a number of statements are made which are scarcely abreast of the times, and indeed would be rather misleading to those who should wish to depend on them for the practical treatment of their cases. Careful experiments in the laboratory have for some years shown that neither alkalies nor mucilaginous materials affect the curd in milk, as was formerly supposed, and as is still copied from book to book; but that to render the albuminoids in cow's milk more like those of human milk, simple dilution with water is sufficient. The author also, in recommending cream mixture, omits to mention the very important fact that a cream of a given per cent. must be used, and thus allows his readers to think that they can successfully feed by means of a formula which, according to our present knowledge, needs most extensive modifications in almost every case. The weight of the infant playing as it does such an important rôle in the hygiene of early life, we would suggest that the small and accurate platform-scales which are in use in this country are far preferable to the Sutil's infant-weigher, recommended by the author. In conclusion, we would compliment the author on the careful and original work which the anatomical portion of his book gives proof of. The book is well worth reading, or rather studying, and gives promise of an interesting sequel concerning the pathology and treatment of the diseases peculiar to infancy, which we trust Dr. Ballantyne will soon place in our hands.

T. M. R.

ARCHIVES OF PEDIATRICS.

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MINUTES

OF THE

THIRD ANNUAL MEETING

OF THE

AMERICAN PEDIATRIC SOCIETY,

HELD IN WASHINGTON, D. C., SEPTEMBER 22 TO 25, 1891.

September 22, 1891.—First Day, Evening Session.

THE President, T. M. Rotch, M.D., of Boston, called the meeting to order at 8 o'clock, in parlors 182 and 183 of the "Arlington."

The following members were present, besides a large number of visiting physicians:

S. S. Adams, Washington; W. D. Booker, Baltimore; S. C. Busey, Washington; W. L. Carr, New York; F. Forchheimer, Cincinnati; J. H. Fruitnight, L. Emmett Holt, A. Jacobi, Henry Koplik, New York; T. S. Latimer, Baltimore; W. P. Northrup, Joseph O'Dwyer, New York; William Osler, Baltimore; C. P. Putnam, T. M. Rotch, Boston; A. Seibert, J. Lewis Smith, New York; V. C. Vaughan, Ann Arbor; William Perry Watson, Jersey City.

On motion, the minutes of the last annual meeting were approved as published.

On motion, it was ordered that all the papers presented to this meeting, with the discussions thereon, be furnished exclusively to the ARCHIVES OF PEDIATRICS for publication therein; the publishers in turn agreeing to make three hundred reprints thereof for the Society free of all expense, and similar to those furnished at the last meeting.

The Secretary read a letter from Dr. William Pepper, Chairman of the Executive Committee of the Congress, saying that the American Pediatric Society had been duly admitted to participation in the Congress of American Physicians and Surgeons.

Letters regretting inability to be present were read from Drs. Blackader, Escherich, Earle, Edwards, Huber, Keating, Love, Starr, Waxham, and Wilson.

The President, Dr. T. M. Rotch, then delivered his annual address.

Dr. J. Lewis Smith read a paper, "How to Prevent Complications and Sequelæ in Scarlet Fever."

The subject for discussion, arranged by the Council, viz., "The Diagnosis of Pneumonia in Infancy and Early Childhood," was then taken up.

A paper by Dr. T. S. Latimer on (1) "The Most Diagnostic Symptoms of the Early Stage of Lobar Pneumonia and the Differential Diagnosis from such Diseases as Meningitis, Malaria, Scarlet Fever, etc.," was read by title, in the unavoidable absence of the author. (2) "The Diagnosis of Consolidation of the Lung from Effusion (Serous or Purulent) and the Differential Diagnosis between Lobar Pneumonia and Broncho-Pneumonia," by Dr. F. Forchheimer. (3) "The Diagnosis of Broncho-Pneumonia (Acute and Chronic) from Tuberculosis," by Dr. William Osler. (4) "The Diagnosis of Broncho-Pneumonia from Bronchitis; also the Temperature Range in Acute Pneumonia, both Broncho and Lobar," by Dr. L. Emmett Holt.

The general discussion was participated in by Drs. Koplik, Jacobi, Smith, Holt, Osler, Northrup, the President, and Adams.

On motion, the Society adjourned at 11 P.M.

Second Day.—Morning Session.

The Society, after a very enjoyable breakfast with the President, was called to order at 11 o'clock by the President.

Dr. William Travers Howard, Jr., Baltimore, read a paper (by invitation) on "A Case of Congenital Heart-Disease," and exhibited the heart.

Dr. Seibert read a paper entitled "Further Report on Sub-membranous Local Treatment in Pharyngeal Diphtheria," which was discussed by Drs. Koplik, Northrup, the President, Smith, Seibert, Holt, Fruitnight, and Putnam.

Dr. W. D. Booker read a paper entitled "A Case of Ulcerative Catarrhal Dysentery."

On motion, the Society adjourned at 1.30 P.M.

Third Day.—Morning Session.

The Society was called to order by the President at 9 o'clock.

The Recorder read a paper entitled "Tubercular Osteitis of the Hip, originating in Colorado," by Dr. J. M. Keating.

A paper entitled "One Hundred and Forty Cases of Heart-Disease in Children," by Dr. F. M. Crandall, New York, was read by title.

A paper entitled "Manifestations of 'La Grippe' in Children," by Dr. Charles Warrington Earle, was read in the abstract by Dr. Seibert.

Dr. Joseph O'Dwyer read a paper entitled "Exhibition of Laryngeal Tubes for the Performance of Forcible Respiration," with demonstration of instruments, which was discussed by Drs. Northrup, Putnam, and O'Dwyer.

Dr. William Osler read a paper entitled "The Association of Congenital Wry-Neck and Facial Herniopathy."

Dr. Charles G. Kerley read (by invitation) a paper entitled "The Application of Gavage in the Treatment of Uncontrollable Vomiting in Infants," which was discussed by Drs. Holt, O'Dwyer, Putnam, Koplik, Seibert, and Kerley.

Dr. Northrup read a paper entitled "Scorbutus in Children," which was discussed by Drs. Rotch, Northrup, Holt, Fruitnight, Putnam, Jacobi, and Smith.

Dr. Adams exhibited a case of pseudo-hypertrophic paralysis.

Dr. Holt read a paper entitled "Two Cases of Acute Primary Nephritis in Infants."

A paper by Dr. Jackson, entitled "Chronic Nephritis in Children," was read by Dr. Putnam.

Dr. Smith read a paper entitled "Scarlatinal Nephritis in Children."

The President announced that the last three papers were opened to discussion, which was participated in by Drs. Seibert, Forchheimer, Putnam, Koplik, Holt, Smith, Fruitnight, Northrup, Rotch, Jacobi, and Carr.

On motion, the Society adjourned at 1.30 P.M.

Third Day.—Evening Session.

After a banquet in the "Arlington," the Society was called to order by the President at 10 o'clock, to receive the report of the Council. The Council reported the following nominations to offices and membership, and, on motion, it was resolved that the report be accepted and the nominations to offices confirmed.

President.—William Osler, M.D., Baltimore.

First Vice-President.—J. M. Keating, M.D., Colorado Springs.

Second Vice-President.—F. Forchheimer, M.D., Cincinnati.

Secretary.—S. S. Adams, M.D., Washington.

Recorder.—William Perry Watson M.D., Jersey City.

Treasurer.—C. W. Townsend, M.D., Boston.

For member of Council, W. D. Booker, M.D., Baltimore.

As representative on the Executive Committee of the Congress, Dr. A. Jacobi; as alternate, Dr. T. M. Rotch.

The following new members were elected by ballot: E. M. Buckingham, M.D., Boston; F. M. Crandall, L. M. Yale, New York; B. K. Rachford, M.D., Newport, Kentucky; I. H. Snow, Buffalo.

The names of Drs. E. C. Wendt, New York, and H. C. Haven, Boston, were dropped from the roll of membership, as per the Constitution.

An assessment of five dollars on each member was ordered.

It was also recommended and ordered that the Society should meet in Boston in the last week in May, 1892.

The following amendments to the Constitution were also recommended by the Council, and, according to the Constitution, will be acted upon at the next annual meeting:

To Article III.: "The membership shall be limited to sixty, and that every applicant for membership shall accompany his application by a thesis of his own composition, and printed copies or references thereto of papers published by him and of the official positions held by him, as well as such other scientific work in Pediatrics as he may have accomplished; and, furthermore, that membership shall be completed by the signifying of acceptance of election and a payment of an initiation fee of ten dollars."

To Article XII.: "Or for non-payment of dues for one year, two notifications being given."

Fourth Day.—Morning Session.

The Society was called to order at 9 o'clock by the President.

Dr. Forchheimer read a paper entitled "Etiology of Stomatitis Aphthosa," which was discussed by Drs. Koplik, Putnam, Forchheimer, and the President.

On motion, it was ordered that Drs. Forchheimer and Rotch be constituted a committee to revise and report to this Society, at its next annual meeting, "A Nomenclature of Stomatitis."

Dr. Fruitnight then read a paper entitled "Perityphlitis in the Young," which was discussed by the President and Dr. Putnam.

On motion, a vote of thanks was unanimously tendered to President Rotch for the careful and painstaking way in which he had administered the duties of his office during the past year.

On motion, the Society adjourned to meet in Boston in 1892.

WILLIAM PERRY WATSON,
Recorder.

THE PRESIDENT'S ADDRESS.

ICONOCLASM AND ORIGINAL THOUGHT IN THE STUDY
OF PEDIATRICS.

BY T. M. ROTCH, M.D.,

Boston.

GENTLEMEN,—Fellow-members of the American Pediatric Society, three years have passed since, in this very city, we crystallized into being and became an entity. Again we gather together to emphasize our individuality as a recognized society. Now, however, as a part of a national organization. Ourselves national in every sense of the word, with our members enrolled from the shores of the Pacific, from the South, from what was formerly the West now the great centre of our commonwealth, from the Atlantic coast, and then stretching still farther to the North, from our sister country, Canada.

I bid you welcome to our national Capital! I congratulate you on the progress which every year is being made in the study of a most interesting as well as important branch of medical science. In the branch which is to help make the people of the future in our great republic worthy of the responsibilities which such a republic brings with it. Which is to make our American citizens both physically and mentally, year by year, decade by decade, superior to their forefathers, and thus enable them to develop their country and its vast resources; thus make her stand shoulder to shoulder, neck to neck, in the race for supremacy which is going on all the world over. A young country in comparison with our medical competitors in the old world, well fitting is it that our Society should devote itself to a subject essentially young not only in years, but young in the knowledge which up to the present time has been acquired concerning it.

So much less has been done in the proper and scientific study of children than at other periods of life, that it is no wonder that we have entered upon the especial investigation of and research in this branch of anthropology with the keen interest of explorers in an almost unknown country. Of still further interest, also, when we discover not only that there is a

vast expanse of unknown, but that much which was supposed to be known is in reality a poor subterfuge of unreal facts forming structures of misleading results, which in the scientific medicine of adults would not for a second be tolerated; in fact would be laughed to scorn as relics of the dark ages of necromancy. This same misnamed medical knowledge, however, when representing the infant and child, has been accepted with but little question. What our society was needed for, what it was formed for, what it intends to do, is to place the study of pediatrics on the same elevated plane that has been established for adult life.

To accomplish this, it must in the early years of its existence be iconoclastic.

It must break down and sweep away these misleading structures, clear the ground of these undesirable remnants of the past, get down to the virgin soil, and then, by original research, build up our new fabric on a stable basis.

Wise iconoclasm and patient originality must be the weapons by which we shall fight our way to the front and place the standard of pediatrics where it ought to be,—place it side by side with the already perfected anatomical and physiological investigations which have become the true basis for the enlightened clinical study of human beings.

To intelligently understand the fully-developed man in health and disease, it seems self-evident that the anatomy and physiology not only of the final state of growth should be studied, but also that the various stages of development, from embryo to infant and infant to child and child to adult, should successively be dealt with. This in the past, however, has been but little done. On the contrary, the very opposite method has been adopted; the most careful attention being paid to adult anatomy and physiology, and then deductions made backward from adult to child,—a retrograde means of acquiring knowledge, which has proved eminently unsuccessful.

In the Old World, as well as in the New, we find that these false methods have been pursued. What little has by more rational methods of study been accomplished in the investigation of infants and children has as large a place in America as in Europe. Here, then, is our opportunity for original

research, for we have a branch of medicine which universally is new. We have the same advantages in clinical material, in well-equipped laboratories, in special hospitals, as are to be found anywhere. Let us be sure that we give as much, if not more, to the savants of Europe as we receive from them.

As I look upon the members of our Pediatric Society and see how well fitted they are to be leaders in the several communities wherein their lot is cast, it is impressed upon me that, when meeting as a whole, our Society should represent advanced and general ideas; should deal with living questions of the day, and that the results of our deliberations should authoritatively be promulgated by our individual representatives far and wide throughout our whole country.

Thus only can the unenlightened influence of the profession at large on the laity be curbed in the harm it is continually doing to scientific medicine; thus only can the self-sufficient ignorance regarding the most critical period of human existence be properly combated, and the general physician be forced to understand that he has but a limited knowledge of what he has been in the habit of considering simple questions; of what he has been accustomed to give off-hand opinions and advice on to the credulous mother of the suffering child.

You probably all have met with the same experience as mine, not only among the poorer class of physicians, but, astonishing as it still seems to me, among the highly educated and distinguished members of our profession.

Among men who are recognized leaders; men who have done much for humanity in other branches of medicine, and yet who, with dignified authority, continue to utter dead platitudes concerning children; platitudes which have been handed down from their forefathers or copied from the already cumbersome literature of pediatrics, and again enunciated by themselves in their own writings.

It is no exaggeration to state that a large number of sick infants and young children throughout the land are suffering from the vigorous treatment of their zealous medical attendants, rather than from the disease with which they started. This should be stopped. This it is the mission of our Society to put an end to.

I ask you to carefully consider this vital question. I ask you to attack it with iconoclasm and original thought, for, I assure you, it will repay you by opening up vast fields of intensely interesting brain-work.

It is not difficult to pick out instance after instance of the truth of what I have just said.

The therapeutics of infancy and childhood, as understood by thousands of practitioners in Germany and France, in England and in America, is a wonderful exhibition of what vagaries the human mind, sound on other subjects, can be induced to indulge in. A total disregard of natural processes; an over-exaggeration of symptoms, which in the adult mean danger and require active treatment, while in the child they are but simple and harmless manifestations of an over-excited nervous system; such is the *Ignis Fatuus*, so misleading not only to those who have not especially studied the early stages of life, but also to those who have seen much of it, but with eyes blinded by traditions of the past. It would seem as though in this age of rapid discovery, of quick change and interchange of ideas,—in an age when the precision of our investigators in all branches of research has almost placed the much-abused profession of medicine on a level with the exact sciences,—it would seem, I say, that we, who are endeavoring to place our especial branch of study on firmer ground, should consider with unusual care the opinions which we express to the profession at large and to the laity; that our writings should be founded on principles as accurate as the science of the day can make them.

This, however, in the past has been but little done, and consequently we have amassed volumes of most unreliable pediatric literature.

I honestly believe that there is reason for saying this.

I truly think that it is one of the vital living questions of the day which we should appreciate and grapple with.

What we need to aid us in this reform—for a reform it must be in every sense of the word—is a fitting humility as to the degree of our knowledge; a proper sense of how small has been the true working capital which we have had at our command in the study of pediatrics.

We must confess, and by so doing we certainly add new strength to our writings, that the medical science of the present day is too vast for one mind to master as a whole; for one man to attempt to be an expert in.

We must make use of the experts in their several branches, whether it be chemistry or physiology, anatomy or bacteriology, to strengthen and make stable our general deductions as clinical investigators.

In this way only can we, in an age essentially one of progress in details, prepare ourselves to produce work of true original thought, of real intrinsic value.

Work which, with its lustre of matured and well-proved thought, spreading far into the future, will be deemed worthy to be placed with the other records of a lasting literature.

The literature of a society gives evidence of the work which has been done by its members long after their individual labors have ceased, and their places have been filled by a younger generation.

If that literature is well considered, and shows evidence of representing not the hasty judgment of the day but of being built on the broad foundation of exact science, it will be worthy of the study of our descendants.

As a sound unquestioned nucleus it will give encouragement to broaden the field of inquiry and to add fresh knowledge year by year.

Let us then see that the circumference of our literary circle, small as it now is, shall spread wider and wider, honestly fitting itself for the far-outstretching, eternal criticism which will judge our work long ages after we are dead and gone.

Let us leave to the coming ages a fitting centre for that scientific, human, eternal progress spoken of in the old hymn which says,—

“Eternity! Eternity!
How long art thou, eternity!
A ring whose orbit still extends,
And ne’er beginning, never ends,
Always thy centre, ring immense,
And *never* thy circumference,
Mark well, oh, man, Eternity!”

It should be our aim that a lasting literature of this kind, ever young and fresh in the truths which it enunciates, ever presenting a solid centre for more extended investigations, should emanate from members of our Society.

Again, then, let us see that what we write, that what we publish, not only in our transactions but in our books, and in the medical journals of the day, shall form volumes worthy of the admiration and not of the derision of our successors.

Let our books so teem with unquestioned truths, with pages recording facts, and finding no place for theories, that on their face they will prove the truth and not the fallacy of the lines which, in the present age of unbridled literature, might well be questioned. Lines which read,—

“Give books : they live when you are dead ;
Light on the darkened mind they shed :
Good seed they sow, from age to age,
Through all this mortal pilgrimage.
They nurse the germ of holy trust ;
They wake untired when you are dust.”

THE DIAGNOSIS OF PNEUMONIA IN INFANCY AND EARLY CHILDHOOD.

I.—THE MOST DIAGNOSTIC SYMPTOMS AND SIGNS OF LOBAR PNEUMONIA (EARLY STAGE), AND THE DIAGNOSIS FROM SUCH DISEASES AS MENINGITIS, MALARIA, SCARLET FEVER, ETC.

BY THOMAS S. LATIMER, M.D.,

Baltimore, Md.

By lobar pneumonia is here meant croupous pneumonia or pneumonic fever, characterized by an inflammatory exudate in which is a relative preponderance of fibrin. An infectious, not contagious, self-limited disease (Minot). The tendency of modern opinion is to consider it a constitutional affection, having its origin in a specific germ, probably the capsule-coccus of Friedlander, with a local pulmonary manifestation. The evidence is, however, as yet far from conclusive; the

absence of this organism in many cases, its presence in the mouth of healthy subjects, the readiness with which pneumonia appears to be induced by the injection of various other morbid materials, and the claim preferred by different observers for the causal relation of different micro-organisms, make it prudent to consider this question as yet unsettled. Moreover, it is seldom that this disease is communicated from one person to another. My own experience in thirty years would prompt me to say it is never so communicated. Whilst it is also doubtless true that in some cases the febrile action sustains no direct relation to the local affection, yet I think it cannot be questioned that usually it does, and that some of the most characteristic symptoms, including pyrexia, are directly as the extent and severity of the pulmonary involvement. A sudden rise of fever in the stage of defervescence is usually held—correctly, I believe—to indicate an extension of the local lesion. However much we may desire to refer lobar pneumonia to the class of affections whose origin is determined, the evidence as yet presented does not warrant any such positive conclusion.

Lobar pneumonia in childhood is usually ushered in by a well-marked rigor, speedily followed by rapid elevation of temperature; in infancy and early childhood frequently ranging from 103° F. to 106° F., with morning subsidence and evening rise of one or more degrees, and a sudden and generally permanent depression about the seventh to ninth day. This temperature range is, perhaps, the most characteristic feature of the disease. It is almost invariably associated with cough, which in early childhood is not accompanied by expectoration, so that one of the most distinctive signs in the adult (the rusty sputum) is lacking at this period. Pain is, as in the adult, commonly present, and is increased in coughing and in prolonged inspiration; but it is not so commonly referred to a definite point, as, in the adult, to region of the nipple of the affected side. When the child is old enough to locate it, it is frequently referred to the epigastric region. The pain, doubtless, indicates involvement of the pleura; though in cases where the cough is very frequent and labored, muscular pain—diaphragmatic or intercostal—may be induced. The patient usually prefers to lie on the affected side or back.

The pulse is frequent, ranging from 120 to 160 per minute, soft and full at the outset, but soon becoming small and irregular (Loomis). Its ratio to respiration may fall as low as two and three-tenths to one (Minot).

Respiration is always quickened disproportionately to the pulse, and is sometimes labored. When unaccompanied by bronchial involvement, however, the respiration, though frequent, is not usually difficult. Although, as in pyrexia, under other conditions respiration may be greatly disturbed independently of the pulmonary lesion, yet the disturbance nevertheless is commonly closely associated with it.

Among the earliest symptoms of lobar pneumonia is vomiting, preceded by a feeling of general malaise and accompanied by headache and pain in other regions of the body. There is little or no appetite. This gastric disturbance is probably of nervous origin, and is closely associated with that nervous perturbation that frequently issues in convulsions. This is probably due to the close physiological relations existing between the brain and stomach in early childhood. Except in old alcoholic subjects, these nervous phenomena are not common to this affection in adults.

A well-marked flush on one or both cheeks is so commonly present and exceptional in other febrile conditions, except phthisis, that it is a valuable diagnostic sign. The cheek on which the flush appears, when it is limited to one side, has no constant or necessary relation to the side on which the pneumonitis is.

It appears that the apex is far more liable in children than in adults. The crepitant râle is less constantly present or more difficult to determine, and is preceded or substituted by gradually diminishing respiratory murmur. The chlorides in the urine are absent or greatly diminished.

All the symptoms and signs enumerated—chill, fever, cough, pain, frequent pulse, respiration disproportionately rapid, fine crepitation, flushed cheeks, dulness on percussion, diminishing respiratory sounds, bronchial breathing, with headache and other nervous phenomena—may all be present in the first stage, the stage of engorgement. Why, then, with so marked a clinical history, should there be any difficulty in diagnosis, even in the first stage?

The difficulty is due to the fact that in no case are all these symptoms present; very frequently the patient is not seen until this stage is passed; no one of the symptoms or signs is absolutely pathognomonic except the crepitation, which cannot always be heard, even with well-behaved children; the rusty sputum, so distinctive in the adult, is seldom to be seen in young children; cases are recorded in which auscultation and percussion revealed nothing until the fourth or fifth day.

The supposed specific germ is not readily obtained from children, and is not diagnostic when found.

Yet, with care, even in the first stage, lobar pneumonia may generally be recognized by a competent observer. Fever is always present, and usually presents the characteristic curve. The pulse is always rapid. The respiration invariably disproportionately quick. The consequent indisposition to cry or violently resist examination is distinctive. Bronchial breathing may very generally be heard even when crepitation is not. Lagging of the affected side is almost invariable.

The diseases with which it is most frequently confused are bronchial or catarrhal pneumonia, capillary bronchitis, tuberculosis, pleurisy, meningitis, and, enumerated among those from which it is to be differentiated in the title of this paper as presented to me, are scarlet fever and malaria.

From bronchial pneumonia it may be distinguished in the first stage by the following symptoms and signs:

<i>Lobar Pneumonia.</i>	<i>Bronchial Pneumonia.</i>
<p>Occurs abruptly.</p> <p><i>Primary.</i></p> <p>Commonly unilateral, and limited to one or two lobes. If primary and at the apex, it can be pronounced.</p> <p>Cough frequent, but not constant, and does not usually precede pyrexia.</p> <p>Characteristic temperature curve.</p> <p>Unilateral elevation.</p> <p>Respiration disproportionately quick, but not labored.</p> <p>Pulse rapid, but soft and full.</p>	<p>Is often slowly developed.</p> <p><i>Usually secondary.</i></p> <p>Commonly bilateral. Has no definite limitation; does not usually involve an entire lobe.</p> <p>Cough invariably present; generally precedes pyrexia.</p> <p>Temperature irregular and equal on both sides.</p> <p>Respiration disproportionately quick and labored.</p> <p>Pulse rapid, and often weak and unresisting.</p>

Fine crepitation limited to circumscribed region, usually on one side only.	Coarse moist râles, bilateral and diffused.
Limited and defined dulness on percussion, and	Dulness and fremitus, when present, more diffused.
Vocal fremitus and resonance.	Vesiculo-tympanitic sound due to emphysematous lobules.
Nervous symptoms more distinctive and severe.	Nervous symptoms less frequent and less severe.
Flushed cheek.	Lividity of face.
Pain severe.	Pain less severe.

From capillary bronchitis it is differentiated by the following symptoms :

Lobar Pneumonia.

Onset abrupt, with rapid elevation of temperature; higher on affected side.
 Respiration rapid, but not labored.
 No cyanosis.
 Fine crepitation, unilateral and localized.
 Bronchial breathing.
 Slight localized dulness and fremitus.
 Cough sometimes absent; usually of moderate intensity.
 Flushed cheeks.
 Pain in side often severe.

Capillary Bronchitis.

Onset less sudden, temperature equal on both sides, and lower.
 Respiration more rapid, very labored, with cyanosis.
 Subcrepitation, bilateral and diffused.
 No bronchial breathing.
 No dulness in first stage, nor fremitus; exaggerated resonance above, diminished resonance in lower collapsed or œdematous lobes.
 Cough invariably present, almost continuous, and frequently attended with cyanosis.
 Lividity of face.
 Pain seldom present.

From acute inflammatory tuberculosis it is distinguished by—

Lobar Pneumonia.

Abrupt invasion, high persistent fever, usually preceded by chill.
 Frequently occurs under five years.
 Pneumococcus. Hectic flush, expectoration of mixed blood (rusty sputum), no shreds of elastic tissue, no night sweats.

Acute Inflammatory Tuberculosis.

Family history, usually slower development; fever often high, but irregular; repeated chills.
 Comparatively infrequent under five years.
 Tubercle bacillus. Hectic flush, expectoration, when patient is old enough, of unmixed blood; shreds of elastic tissue, night sweats.

Fine crepitation, usually limited to one lobe, with similar limitation of dulness and fremitus, and bronchial breathing.

But little emaciation.

Other organs seldom involved.

Coarser crepitation, not so definitely limited, with gradually extending incomplete dulness from more than one point; less pronounced, but more extended, bronchial breathing and fremitus; bilateral.

Rapid and continuous emaciation.

Other organs commonly involved.

The diagnosis of acute tuberculosis is well summed up by Dr. Stokes, of Dublin, in the following statement: "If, in a case presenting the symptoms and signs of intense bronchitis, or if crepitating râle has been present, yet persisting to the last, we find the chest becoming dull; if this dulness be extensive, yet incomplete, without bronchial respiration, the stethoscope showing that the lung is everywhere permeable, the solidity only occurring in points; or, if the crepitus be so slight as not to account for the dulness, we may make the diagnosis of the acute inflammatory development of tubercle." (Stokes, Sydenham, 1882.) If to this is added the detection of the tubercle bacillus, the evidence is complete.

Lobar Pneumonia.

High temperature, 103°.

Rapid breathing without inspiratory catch, unless associated with pleurisy.

Pain not marked, except when associated with pleurisy.

Cough loose; characteristic sputa when patient is old enough to expectorate. *Pneumococcus*.

Fine crepitation, with slight dulness, frequently at the apex; vocal resonance and fremitus increased.

Pleurisy.

Low temperature, 100°.

Rapid breathing, with inspiratory catch.

Pain acute and uniformly present.

Cough dry and hacking; expectoration not characteristic.

Friction sound often wanting in children, but when present, usually central. Dulness usually at the base; vocal resonance and fremitus absent over area of dulness. Varying site of dulness with changed position frequently occurs. Cardiac displacement. Fluid may be withdrawn with hypoderm.

Acute meningitis may be distinguished by its relative infrequency, the rarity with which it occurs apart from aural and

mastoid complications ; by the absence of severe initial chill and subsequent high temperature ; by slowing and irregularity of respiration and pulse, and by the absence of abnormal respiratory and percussion sounds, and by the absence of pain in chest or epigastrium.

The nervous phenomena are much the same in meningitis and in those cases of lobar pneumonia that have marked cerebral symptoms ; but even those pneumonic cases where the cerebral symptoms precede the auscultatory and percussion phenomena are sufficiently distinguished by the high temperature, rapid breathing, and quick pulse.

With scarlet fever there does not seem to be any great danger of confusing pneumonia. Though the chill and sequent fever are much the same, the cough, pain, rapid pulse, and disproportionately rapid breathing in pneumonia, their absence, together with the presence of pharyngeal redness and the early appearance of the skin-rash, with history of exposure, serve sufficiently to distinguish them. When fine crepitation is present and rusty sputa are expectorated, no room for doubt exists.

Lobar pneumonia is differentiated from malaria by its characteristic temperature, rapid breathing, pain, cough, quick pulse, and the physical signs when present ; whilst in malaria the locality in which it usually occurs—more constant, severe, and protracted chill, followed by high fever without marked respiratory trouble, terminating frequently in profuse perspiration, with a tendency to recurrence of chill and fever at fixed periods, and the detection of Laueran's corpuscles—would be conclusive. The spleen is frequently enlarged in malaria.

I have placed but little stress on the presence of the pneumococcus in diagnosis, because I think its value as yet undetermined ; and also upon the percussion sounds, because they are so slightly developed in the first stage of this disease.

II.—THE DIAGNOSIS OF CONSOLIDATION OF THE LUNG FROM EFFUSION (SEROUS OR PURULENT).

BY F. FORCHHEIMER, M.D.,

Cincinnati, Ohio.

As between pupil and teacher, no subject is more satisfactory than that of differential diagnosis; as between fellows of a learned society, none less. In the class or lecture-room general outlines are requisite in order that the student may have a diagram which he can fill out; here both generalities and details are filled out, and there remain only such things as can be discussed, or facts concerning which there are varied explanations. It would therefore not be feasible to go into all the points of differential diagnosis that are to be found in my comprehensive subject even if time permitted, since they are most of them described in the text-books so familiar to our students; there will remain, then, only those points which I have found most valuable or most interesting.

In the first portion of our subject, the diagnosis of consolidation and effusion, we will find an easy task if we have to deal only with acute processes running a typical course. It seems almost impossible to mistake a serous pleural effusion for a genuine, typical croupous pneumonia, yet such things are being done daily. The difficulty lies in the atypical acute or chronic cases, and to these I wish to call your attention.

Simon, in a lecture published in the *Progrès Medical* (No. 5, 1891), makes the statement which, to me is rather remarkable, that encysted pleural effusions are quite frequent, and that this encysting may take place either in the upper or lower parts of the chest. If this be so, and my own experience does not lead me to concur in the statement, the differential diagnosis of a pleural effusion will certainly become more difficult. As far as subjective signs are concerned, I believe them to be of little importance, especially in young children; indeed, the sooner the physician accustoms himself to accepting principally those things as facts which he himself observes the better. In both a chronic consolidation and an encysted pleurisy, the

patient has been ill for some time, there has been more or less fever, possibly detected only by the constant use of the thermometer; there has been more or less cough and the general condition of the child may or may not be bad. The dyspnoea would depend largely upon mechanical, local conditions, and might or might not be made of service in differentiation. Who has not seen children running about with appreciable quantities of fluid in their chests, apparently well, with the exception of dyspnoea upon exertion? It is true that they are somewhat emaciated, pale, without much appetite, and, possibly, we may elicit the fact that they sweat profusely during sleep or otherwise. The same may be said for a phthisical consolidation in childhood, and the only result of this examination would be that our attention will be attracted to the respiratory organs as the seat of the trouble. Even this, I take it, will be a great gain, for diagnosis becomes exceedingly difficult in complicated cases of chest-trouble, and, it will be admitted, post-mortem revelations are rather startling in some cases. The books will insist upon one symptom,—the child has had pain. In the majority of instances there can be no doubt upon this score; but where is the pain? How much reliance can be placed on the localization of pain by a three-year-old child? In troubles about the chest it is usually in the epigastric region, and how many affected organs reflect or rather project their sensations to this spot! So that, after all, we must rely principally upon our own examination for diagnosis.

Supposing, now, we are to deal with an encysted pleuritic exudation on the left side, high up, anteriorly. This is evidently a place where differentiation from phthisis becomes difficult; could this differentiation be made? If the quantity of fluid be sufficiently great, there should be very little difficulty; if the quantity be very small, it will be quite, if not altogether, impossible. In the latter instance, few physical signs, if any, will be present to call our attention to the existence of any disturbance (it must be remembered that in a child it takes from fifty to one hundred grammes of fluid to produce evidences of its existence), and if slight indications of trouble be found, the chances are that no one will think of

a small, encysted pleural effusion, and will therefore not make a differential diagnosis, but will come to the more or less warranted conclusion that he is dealing with a small pulmonary consolidation.

If, however, we have evidence of a wide-spread change in the chest, the question might present itself in a different light. A pleuritic exudation will be found, in the great majority of instances, to be secondary to pneumonia, infectious diseases, or to tuberculosis. I do not wish to be understood as saying that there are no primary pleurisies in childhood, but the vast majority of encysted pleurisies are secondary, and secondary to a tubercular infection. If, then, the history does not help us in determining the primary or secondary nature of the affection, we are justified in thinking of an encysted pleurisy.

Inspection of the affected portion may give us valuable information. In the case of a chronic pulmonary infiltration we might or might not have something to record; if any change had taken place, it would have been in the nature of a sinking of that side with all its consequences, rotation of the scapula on that side, possibly slight curvature of the spine, sinking in of the infraclavicular space, and comparative immobility of the part affected. In the case of a larger, encysted collection of fluid, there will, on the contrary, be more or less bulging, and the immobility will not be so appreciable. A sufficient collection of fluid always produces a noticeable change in the contour and size of a child, in our case a localized one, but my experience has taught me that the prominence of the intercostal spaces is by no means the most common form. This will especially be the case in a non-encysted effusion, in which bulging of the intercostal spaces becomes an anatomical impossibility unless the quantity of fluid be very great. Bulging might be possible in the localized form, but we have evidence that is far more valuable, viz., increased resistance upon palpation, felt in the intercostal spaces. This resistance is present even when the child cries, indeed, it is increased by the child's cries. Difficult cases have lead me to lay much stress upon this evidence, and continued observation only verifies its value. Even with retracted intercostal spaces this sign remains, and it is more pronounced in the elastic, thin

chest walls of children than in the adult. This resistance combined with the evidences of percussion are sufficient, in most instances, to differentiate between consolidation and effusion. The percutory evidence is the absence of air, and the distinction between dullness and flatness, when it is possible to obtain this difference. For this purpose it is necessary to percuss very softly, since we frequently percuss for resistance or tension only, as the sounds obtained by percussion in an unruly child are in most cases of very little value. To me, the difference in tension between the side affected and the healthy one is very much greater than the difference between a healthy and a glaucomatous eye. In an encysted effusion, the question of outline of flatness could hardly become a matter of moment, but in a general effusion, the curved outline of the upper level is by no means as characteristic as in the adult, though present at times.

As for change from flatness to resonance, as a result of change in posture in the child, I do not remember having seen it in any case, although it is mentioned by authors as a positive sign.

Auscultation, again, can only be relied upon where the quantity of encysted fluid is great. Even when there is a great quantity of fluid present, the physical conditions are by no means as favorable as in the adult. Sounds are conducted in an apparently most mysterious manner in the infantile thorax; it is only necessary to recall the conduction of bronchial breathing from a pneumonic side to the healthy to illustrate the truth of this statement. If we get no breathing-sounds over the affected portion, we are reasonably sure that a body containing no air is interposed between the ear and the lungs.

This condition can, in the existing case, be expected only over a very limited area, and then can only be detected by using a stethoscope with a small bell. The same can be said for the vocal fremitus, while a diminution can be relied upon in large quantities of fluid; in small quantities the diminution, if any, will be so slight as to escape even the most practised ear.

As for ægophony, I have long ago looked upon it as one of those accidental phenomena which are rarely heard in children,

and therefore of very little practical importance. We are helped along in our differentiation, however, by the positive evidences of consolidation that are usually present,—bronchial breathing, increase in voice-sounds, and possibly the presence of râles. It is, by no means positive that a consolidated area will always give us these signs, but an absence will always be temporary, and repeated examinations ought not to fail in clearing up this aspect of the case. However, I have seen so many mistakes made in even apparently so simple a matter as the diagnosis of phthisis, and have made them myself, that I prefer to wait with a diagnosis until repeated examinations have been made. Differentiation would be much easier if, as in the adult, it were possible to examine the sputum in all cases.

Everything being weighed, and the conclusion that we are dealing with a pleural effusion being, tentatively, arrived at, but one thing remains to be done to make the diagnosis positive, if this be found necessary. Small as is the risk of introducing a hypodermic needle into the chest, I do not believe it indicated in order to appease one's thirst for knowledge. A hypodermic needle will, in most instances, determine whether fluid be present or not, but every one will have seen cases in which it is impossible to draw off fluid with a needle when a subsequent operation with a large opening will show that the pleural cavity may be full. It is only recently that a case of this sort has come under my observation: a phthisical colored boy, of eight years, had all the physical signs of a large pleuritic exudation upon the left side, including displacement of the heart and pushing down of the diaphragm and spleen, repeated introductions of the aspirator failed to prove the existence of fluid, yet so sure was I of the diagnosis that thoracotomy was advised. The surgeon delayed the operation for a few days, when intense dyspnoea developing, resection of a rib was done, and it was found that the pleural cavity contained gelatinous, semisolid masses, which could only be removed with the fingers and instruments, there being comparatively little fluid present. In speaking of serous accumulation I have not for the present taken hydrothorax into consideration.

The differential diagnosis of empyema and serous accumulation usually results in a presumptive diagnosis unless the

needle is used. It is true that in some cases presumption almost amounts to certainty, but, from a scientific stand-point, we could hardly place the diagnosis on the same footing as that between a croupous pneumonia and a large, serous pleural effusion. If the term secondary may be applied to any form of pleural effusion, it can be applied to empyema. It is needless to add that by "secondary" I mean that some other disease has preceded the pleurisy. Much may be gained if this fact can be established by the history. However, cases do occur in which an empyema is set up without any preceding previous disease, and, certainly, many serous effusions are secondary. Much has been done to clear up the etiology of pleurisies (Weichselbaum, Fraenkel, Ehrlich, Koplik, and others), but the chapter is by no means finished, and it will be well, for the present, to retain the terms primary and secondary.

I do not believe in the existence of so-called idiopathic inflammations, least of all idiopathic pleurisies; and if even the most careful bacteriological investigators have failed to find a cause in some exudations, it means only that the cause was not a lower form of life but something else.

The age of the patient must be seriously taken into consideration. Seldom do we find serous effusion under four years of age, empyema being most common at that period of life, although exceptions exist to this rule. The thermometer will do something in helping us: where there is pus, we usually have the symptoms produced by accumulations of puss; more or less hectic, diurnal ranges of temperature of a great many degrees, possibly with subnormal temperature in the morning, chills or chilly sensations, sweats, more or less profuse. All these may occur in serous pleurisy, but they are the exception. A long-continued afebrile course certainly speaks against empyema. I have been unable to utilize some of the fine auscultatory signs that have been put down, for instance, the greater transmission of sound in cellular fluids; upon theoretical grounds they may be perfectly correct, but in practice they seem without value, at least in children. To exclude hydrothorax seems an easy matter; it is only necessary to remember that hydrothorax is a dropsy, and the diagnosis becomes clear. There are rare cases in which hydrothorax is

produced by pressure upon large veins or lymphatics, but such cases can be usually recognized by the appearance of oedema in other parts and by chemical analysis of the exudate (Leichtenstern).

After all is said and done, an examination of the fluid is the most reliable evidence we have.

Aspiration either with an hypodermic syringe or with a small aspirator gives absolute evidence in this direction in by far the great majority of cases. The exudation may be so thick as not to pass through the small needle; this fact, as has been stated before, must not be overlooked. Again, cases in which the fluid has separated itself into layers will occur in older children who have been upon their back a long time. In a boy of eleven years who came under my charge in the Cincinnati Hospital, and from whom about fifteen hundred cubic centimetres of fluid were withdrawn, the upper portion of the fluid was perfectly clear, while the lower was cellular. It is necessary to introduce the needle as low as possible in order to get as correct an idea of the fluid as the circumstances permit. The conditions admit no more definite rule, it seems to me, than that the exact location for puncture varies with the patient. For our purpose we wish to get at the lower strata of exudation; when the patient has been forced to lie on his back, the lowest practicable point will be somewhere in the posterior axillary line; when he has been forced to be propped up, it will be between the two axillary lines, and when he has had to sit forward, it will be about the anterior axillary line.

The ninth or tenth interspaces must be chosen for the same reason; the objections that there is danger of going through the diaphragm, its injury, or that the diaphragm may come into apposition with the end of the needle, are, it seems to me, purely theoretical. The only other precaution to be taken is asepsis or cleanliness. It will be conceded on all hands that damage may be done and is being done by the introduction of the needle, but the risk is certainly very small with proper care, though large enough, it seems to me, to make indiscriminate puncture unwarrantable.

III.—DIAGNOSIS OF TUBERCULOUS BRONCHOPNEUMONIA IN CHILDREN.

BY WILLIAM OSLER, M.D.,

Baltimore.

THE question is beset with difficulties. Broncho-pneumonia is a lesion, not a disease. In the post-mortem room, with the lungs before us, there may be a doubt whether the affection is simple or tuberculous. The following are suggestive points :

(a) *The frequency of lung tuberculosis in infants.*—Recent observations have shown that the disease is more common than we have supposed. Leroux's analysis of the statistics of the late Professor Parrot's is particularly instructive. Of two hundred and nineteen cases, in children under three years, there were from one day to three months twenty-three cases; from three to six months, thirty-five cases; from six to twelve months, fifty-three (a total of one hundred and eleven under one year); and from one to two years, one hundred and eight cases. Pulmonary cavities were present in fifty-seven of the cases. Of five hundred autopsies in children reported last year from the Munich Pathological Institute, in one hundred and fifty tuberculosis was present, and in over ninety-two per cent. of these the lungs were involved. The observations of Northrup, at the New York Foundling Hospital, also emphasize the prevalence of pulmonary tuberculosis in early life. These figures show a very much larger percentage than indicated in the older observations of West, Frobilius, and others, and they are of value in calling the attention of practitioners to the widespread existence of infection in infants.

(b) *The circumstances under which tuberculous broncho-pneumonia may occur.*—It may develop in a well-nourished infant with healthy antecedents. A case reported by Toulmin from my clinic was very interesting in this respect. The child was aged four months. The family history was irreproachable. The grandparents were living, and the parents were strong and well. When the baby was nine weeks old they moved into a house which had been vacated three weeks before by a

woman who was under our care at the Dispensary with chronic phthisis, and in whose sputa there were numbers of bacilli. In this instance the strong probability is that the child had become infected in the house. The post-mortem showed the most extensive tuberculous broncho-pneumonia, and suppurative and caseous foci in the bronchial glands. The prevalence of infection through the lungs in children is strikingly shown in the recent paper by Northrup. That in every one of one hundred and twenty-five consecutive cases of tuberculosis in children the bronchial glands should be involved tells its own story. The bacilli are inhaled attached to the particles of dust, and reach the bronchial nodes through the lymph-vessels. I have not seen an instance of pulmonary tuberculosis in a child, in which the mediastinal glands were not involved; and how often, too, in autopsies upon children who have died of various diseases, do we find these structures caseous! The constant lodgement of the bacilli at the lymphatic gate-ways, bronchial or mesenteric, is the strongest argument against Baumgarten's theory of hereditary transmission with latency of the germs.

The relation of tuberculous broncho-pneumonia to the infectious diseases has long been recognized. Convalescence from measles, scarlet fever, diphtheria, and whooping-cough is fraught with danger. No one now supposes that the simple broncho-pneumonia, so often associated with these diseases, ever of itself terminates in tuberculosis. When this event happens, it means either a preparation of the soil by the occurrence of catarrhal processes or a lowering of the tissue-resistance, so that the bacilli already existing in the bronchial nodes are enabled to develop. In the latter case the diversion of forces has weakened the defence, advantage of which is taken by an enemy already intrenched but kept at bay.

(c) *Clinical types*.—An acute pneumonic form of tuberculosis in infants is not, I believe, recognized. I have never met with a case in which the onset, the rapid course, and the physical signs simulated exactly acute lobar pneumonia, a simulation of which is by no means uncommon in the adult. The anatomical condition in children is almost always either lobular or pseudo-lobar,—that is to say, the lobe looks uniformly involved; but there are between the areas of consolidation

strands of air containing tissue. Three groups of cases may be recognized. In the *first*, the child is taken ill suddenly during teething or convalescence from an infectious disease. The temperature rises rapidly, and dyspnoea is present with severe cough. The physical signs show areas of consolidation at the apices or central portions of the lungs and numerous râles. Death occurs within a week, or, indeed, within a few days. The post-mortem shows numerous foci of bronchopneumonia; the general appearance of the inflamed areas is red or reddish-brown; only in the cases which persist for a week or ten days are there indications of caseation. It is extremely important to bear in mind that some of these cases macroscopically do not present the features of a tuberculous lesion, and, as in an instance reported by Cornil, microscopical examination alone determines the true nature of the disease. The presence of caseous bronchial glands should always excite suspicion. In the *second group* the features are those of a severe inflammation of the lungs. After an infectious disease, or following exposure to cold, the child has a slight cough and gradually becomes feverish. The respirations increase in frequency, the temperature rises to 103° or 104°, the physical signs are well characterized, and no doubt whatever exists as to the existence of a bronchopneumonia. Death may occur after an illness of from three to six weeks. The following abstract from a post-mortem in a case of this kind gives a good illustration of the anatomical condition: "The upper lobe of the right lung is scarcely anywhere crepitant, except at the anterior margin. The middle and lower lobes are heavy and slightly crepitant; the visceral pleura is beset with tubercles which have grown into it from the lung. On section the right upper lobe is occupied with caseous masses from five to twelve millimetres in diameter, separated from each other by an intervening tissue of a deep red color. The middle and lower lobes are stuffed with tubercles, many of which are becoming caseous. Towards the diaphragmatic surface of the lower lobe there is a small cavity the size of a marble. The left lung is more crepitant and uniformly studded with tubercles of all sizes, some as large as peas. There is an acute tuberculous bronchitis in the

smaller and larger branches. The bronchial glands are very large, and one contains a tuberculous abscess." This was from a child aged four months, who had been ill for six weeks.

The *third group* embraces cases in which, following a bronchitic attack, or measles, or whooping-cough, the child has fever of moderate grade and loses flesh. The onset may be insidious, in this way, or, as is sometimes the case, more abrupt and stormy. The physical examination shows areas of defective resonance at the upper and middle portions of the lungs, and moist râles. At first regarded as a case of capillary bronchitis, or broncho-pneumonia, it is only the protracted character of the disease, the supervention of chills and sweats, the gradual development of hectic, the paroxysmal character of the cough, the change in the physical signs indicating softening and breaking down,—these phenomena alone convince the physician that he has been dealing with an instance of pulmonary tuberculosis. I do not here refer to the instances, which are rare indeed, of acute miliary tuberculosis in infants.

(d) *The diagnosis*.—In the acute cases we cannot often say whether the affection is simple or tuberculous in its nature. It must not be forgotten that broncho-pneumonia is a lesion, not a disease, a lesion which has a varied etiology, and may be caused by streptococci, by the tubercle bacillus, and possibly by other organisms. The physical signs in the cases of the first and second groups give us few differential indications. The simple and the tuberculous forms occur, perhaps, with equal frequency in the upper lobes. The tuberculous disease is more apt to invade the central portion, and the most marked dulness and physical signs may be at areas corresponding to the roots of the lung. The patchy character of the dulness, the regions of hyper-resonance, sometimes of marked tympany, the blowing or whiffing respiration, with fine râles, are valueless from a stand-point of etiological diagnosis. In the pseudo-lobar form, in which over a considerable portion of one lobe there is dulness or a flat tympany with blowing breathing, it is impossible by the physical examination alone to determine whether the case is one of rapid tuberculous caseation or a lobar pneumonia from cold. In infants under two years lobar

pneumonia is, however, extremely uncommon, while, on the other hand, tuberculous broncho-pneumonia is frequent. Are there any other features in the disease which will help in the differentiation? The fever is not of any value, and, so far as I know, no reliable differences have been determined in the temperature-range of the acute forms of broncho-pneumonia. In the cases following diphtheria and measles, bilateral disease is more common. Enlargement of the spleen, which is present so often, is not of any special value, as it occurs with the fever, and is independent of the nature of the trouble. Perhaps it is more frequent in the tuberculous forms. The physical signs and symptoms failing us, we have to fall back upon the personal history of the child, and of its parents, and the antecedent illnesses. The broncho-pneumonias after measles and whooping-cough are more likely to be tuberculous than those which follow scarlet fever and diphtheria. Naturally, in the latter disease we see a larger number of cases of the streptococcus form than in any other. The case to which I have already referred, a robust infant of four months with healthy parents, shows that even under the most favorable circumstances an intense tuberculous infection may occur.

Practically, then, in cases of the first and second groups, in which the tuberculous broncho-pneumonia is acute and may kill within from three days to six weeks, we are usually unable to say whether the process is tuberculous or not. We can often make a shrewd surmise, remembering that a very considerable proportion of all these cases are tuberculous, but there is no certainty with reference to it.

In the third group, in which the disease is protracted, and in which there are signs of excavation and the child presents really a picture of ulcerative phthisis, the diagnosis is rarely doubtful. Here, too, we have an opportunity, such as rarely happens in the other cases, of examining in the vomit portions of the expectoration and discovering the tubercle bacilli. On several occasions I have been able to do this, and it certainly should be practised whenever possible.

(To be continued.)

Original Communications.

AFFECTIONS OF THE RESPIRATORY SYSTEM IN INFANCY AND CHILDHOOD, COMPILED AND ARRANGED IN TABULAR FORM.

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(Continued from October number.)

C. THE PHARYNX.

DISEASES OF THE PHARYNX.

1. *Pharyngitis*—(Continued).

(b) Rubeolar Pharyngitis.

DERIVATION.—*Rubeola*, a little red spot.

SYNONYME.—Sore throat of measles.

DEFINITION.—An acute, specific, catarrhal inflammation of the mucous membrane of the pharynx, constituting but a portion of the general inflammation of the respiratory mucous membrane as encountered in the course of measles, and characterized by the appearance thereon of a blotchy eruption, with occasionally the formation of a fibrinous diphtheritic exudate.

VARIETIES.—1. Simple.

2. Diphtheritic (*rare*).

ETIOLOGY.—1. *Predisposing causes*.

(1) Age, childhood.

(2) Season, winter and spring.

2. *Exciting cause*.

(1) The contagium of measles.

PATHOLOGY.—

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| 1. <i>Macroscopic.</i> | { | <p>(1) <i>Pharynx.</i></p> <p style="padding-left: 20px;">a. Mucous membrane swollen, hyperæmic, inflamed, covered with a blotchy eruption of spots.</p> <p style="padding-left: 40px;">(a) <i>Size.</i> Small or large.</p> <p style="padding-left: 40px;">(b) <i>Color.</i> Dark red, at times livid; ulcerated (<i>occasional</i>), with abscesses (<i>occasional</i>); dotted with patches of fibrinous exudate (<i>occasional</i>).</p> <p>(2) <i>Tonsils.</i> Enlarged, rarely suppurating.</p> <p>(3) <i>Tongue.</i> Swollen, frequently containing aphthous ulcerations (<i>Ringer</i>).</p> <p>(4) <i>Gums.</i> Slightly ulcerated along the teeth (<i>aphthous</i>).</p> <p>(5) <i>Lips.</i> Cracked, with aphthous ulcerations (<i>Ringer</i>).</p> <p>(6) <i>Cervical glands.</i> Enlarged.</p> |
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SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Coryza constant.
 (2) *Oro-pharynx.* a. Respiration slightly accelerated.
 b. Voice hoarse.
 c. Tongue coated; papillæ swollen, prominent; tip and sides red.
 d. Deglutition painful.
 e. Pain in throat slight.
 f. Cough frequent, hoarse, barking, paroxysmal, harassing.
 g. Expectoration viscid, acrid, scanty at first; later, free, containing coin-shaped masses floating in watery mucus.
 h. Eruption blotchy; diphtheritic patches on ninth to tenth day irregular, friable (*occasional*).
 (3) *Ears.* a. Deafness slight.
 b. Otagia occasional.
 c. Purulent otorrhœa occasional.
2. *General.* { (1) Malaise general.
 (2) Fever slight.
 (3) Pulse slightly accelerated.
 (4) Anorexia complete.

DURATION.—Seven to eight days.

SEQUELÆ.—*Aural.* (1) Perforation.
 (2) Chronic catarrh of the middle ear (*rare, Spencer*).

DIAGNOSIS —From diphtheritic pharyngitis.

Rubeolar Pharyngitis.

1. Invasion gradual.
2. Constitutional involvement comparatively slight.
3. Characteristic, mottled, blotchy appearance of the mucous membrane of the pharynx.
4. Fibrinous exudate only occasional and irregularly distributed.
5. Catarrhal symptoms very prominent.
6. Characteristic cutaneous eruption.
7. Expectoration scanty at first; later, profuse, containing coin-shaped masses.
8. Urine non-albuminous.
9. No odor about the body.
10. Rarely fatal.

Diphtheritic Pharyngitis.

1. Invasion abrupt.
2. Constitutional involvement profound.
3. Mucous membrane of the pharynx uniformly reddened and congested.
4. Exudate constant, uniformly distributed.
5. Catarrhal symptoms not so pronounced.
6. No cutaneous eruption.
7. Expectoration scanty, containing fragments of false membrane.
8. Urine albuminous.
9. Characteristic odor of body.
10. Frequently fatal.

PROGNOSIS.—1. Good (*simple cases*).2. Grave (*diphtheritic cases*). Mortality eighty per cent.TREATMENT.—1. *Local.* (1) *Sedative applications.*

- a. Sucking of ice.
- b. Hot inhalations.
- c. Compresses, hot or cold.

2. *Constitutional.* (1) *Febrifuges.*
 a. Antifebrin.
 b. Aconite, small doses.
 c. Antipyrin.
 (2) *For bowels.*
 a. Saline laxatives.
 (3) *For the cough.*
 a. Opiates, small doses.
 b. Syrup of ipecac.
 (4) *Tonics.*
 a. Quinine.
 b. Arsenic.

(*c.*) Scarlatinal Pharyngitis.

DERIVATION.—*Scarlatina.*

SYNONYME.—Sore throat of scarlet fever.

DEFINITION.—An acute, specific, inflammation of the mucous membrane of the pharynx, occurring at the onset of scarlet fever, and characterized by a congestion and swelling of the mucous membrane and glandular tissues, with occasionally the deposit of a fibrinous exudate in cases of great severity.

- VARIETIES.—1. Simple.
 2. Anginous.
 3. Diphtheritic, gangrenous, or malignant.

- ETIOLOGY.—1. *Predisposing causes.*
 (1) Age, childhood.
 (2) Season, winter and spring.
 2. *Exciting cause.*
 (1) The contagium of scarlet fever.

PATHOLOGY.—

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| 1. <i>Macroscopic.</i> | { | (1) <i>Pharynx.</i> | Mucous membrane congested, swollen, with points of deeper injection, excoriated (<i>grave cases</i>); abscesses occasional (<i>anginous cases</i>); pultaceous deposits (<i>malignant cases</i>); color, red, purple, livid (<i>malignant cases</i>). |
| | | (2) <i>Tongue.</i> | Swollen, injected; papillæ enlarged, prominent (" <i>strawberry tongue</i> "). |
| | | (3) <i>Tonsils.</i> | Greatly enlarged. |
| | | (4) <i>Lips.</i> | Dry, cracked. |
| | | (5) <i>Cervical glands.</i> | Greatly enlarged. |

SYMPTOMS.—

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| 1. <i>Local.</i> | { | (1) <i>Oro-pharynx.</i> | <i>a.</i> Respiration slightly accelerated. |
| | | | <i>b.</i> Voice nasal. |
| | | <i>c.</i> Tongue furred. | |
| | | <i>d.</i> Throat dry, stiff, sore. | |
| | | <i>e.</i> Pain slight. | |
| | | <i>f.</i> Thirst great. | |
| | | <i>g.</i> Secretion viscid, scanty. | |
| | | <i>h.</i> Cough occasional. | |
| | | <i>i.</i> Deglutition difficult, painful, dysphagia marked at times; regurgitation of food (<i>occasional</i>). | |
| | | <i>j.</i> Deposit of membrane in throat (<i>grave cases</i>). | |
| (2) <i>Ears.</i> | { | <i>a.</i> Tinnitus | } (<i>due to inflammation of Eustachian tube</i>). |
| | | <i>b.</i> Deafness | |

2. *General.* { (1) Malaise great.
(2) Vomiting frequent.
(3) Anorexia complete.
(4) Fever high, 104° to 105° F.
(5) Pulse rapid, often weak.
(6) Eruption on skin.

DURATION.—Three or four days to several weeks.

SEQUELÆ.—1. *Aural.* (1) Deafness.
2. *Renal.* (1) Bright's disease.

DIAGNOSIS.—1. From diphtheritic pharyngitis.

Scarlatinal Pharyngitis.

1. Essentially a disease of childhood.
2. Redness of the throat, scarlet, diffused, punctated.
3. Characteristic punctiform eruption on the skin at the end of twenty-four hours.
4. Throat symptoms late in the course of the disease.
5. Usually no formation of false membrane.
6. Tongue characteristic, strawberry-like.
7. Cough occasional.
8. Expectoration viscid, scanty.
9. Fever sthenic, often very high, 104° to 107° F.
10. Pulse usually very rapid, strong.
11. Urine albuminous in late stage of the disease.
12. Rarely or never followed by paralysis.

Diphtheritic Pharyngitis.

1. May appear at any age.
2. Redness of throat, dull, dark.
3. Usually no eruption on the skin, or if present but slight, and late in the course.
4. Throat symptoms early in the course of the disease.
5. Always formation of false membrane.
6. Tongue coated yellowish or brownish.
7. Cough frequent, harassing.
8. Expectoration scanty, containing fragments of false membrane.
9. Fever slight, asthenic, 101° to 103° F.
10. Pulse rapid, full, feeble.
11. Urine soon becomes albuminous.
12. Frequently followed by paralysis.

2. From acute superficial tonsillitis (*vide*).

CAUSE OF DEATH.—1. Exhaustion.

2. Intensity of poisoning.

3. Suffocation (*malignant cases*).

PROGNOSIS.—1. *Simple cases*, good.

2. *Anginous cases*, anxious. *Mortality* twenty-five per cent.

3. *Diphtheritic cases*, bad. *Mortality* fifty per cent.

TREATMENT.—1. *Local.* (1) *Daily acidulated sprays* (*Cohen*).

a. Boracic acid.

b. Chlorate of potassium.

(2) *Injections into tonsils and soft palate.*

a. Carbolic acid, 3-5 per cent. solution, one-half Pravaz syringe full two or three times daily (*Götz, Heubner, Traube*).

(3) *Disinfectant applications.*

a. Cleansing of throat by disinfected charpie on sticks, followed by solution of carbolic acid 1 to 2 to 1 to 10 (*Ziemssen*).

(4) *Sedative applications.*

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| a. Emollients | } to neck. |
| b. Poultices | |
| c. Ice-bag | |

2. *Constitutional.* (1) *Febrifuges.*

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| a. Aconite, small doses. |
| b. Antifebrin. |

(2) *Tonics.*

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| a. Quinine. |
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(2) CHRONIC PHARYNGITIS.

- VARIETIES.—1. Chronic follicular.
 2. Specific.
 3. Scrofulous.

a. Chronic Follicular Pharyngitis.

DERIVATION.—*Folliculus*, a little bag of leather.

- SYMPTOMS.—1. Chronic catarrhal pharyngitis.
 2. Granular pharyngitis.
 3. Glandular pharyngitis.
 4. Ulcerated sore throat.
 5. Simple chronic sore throat.
 6. Chronic relaxed throat.
 7. Pharyngitis sicca.
 8. Angine glanduleuse
 9. Angine granuleuse
 10. Angine papillaire
 11. Pharyngite glanduleuse
 12. Pharyngite granuleuse
 13. Chronischer pharynxkatarrh
 14. Chronischer pharyngitis
 15. Faringitide cronica (*Italian*).
 } (*French*).
 } (*German*).

DEFINITION.—A chronic inflammation of the pharyngeal mucous membrane, occurring frequently in children, though most commonly appearing between the ages of twenty-five and thirty, characterized by a special involvement of the follicles and the immediately surrounding mucous membrane, and running a course of long duration.

- VARIETIES.—1. Hypertrophic.
 2. Exudative (*very rare*).

ETIOLOGY.—1. *Predisposing causes.*

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| (1) Heredity. |
| (2) Repeated acute attacks. |
| (3) Tobacco smoking. |
| (4) Masturbation (<i>Seiler</i>). |
| (5) Obstruction to nasal respiration. |
| a. By nasal hypertrophies. |
| b. By enlargement of Luschka's tonsil. |

2. *Exciting causes.*

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| (1) Improper use of voice. |
| a. Excessive crying. |
| b. Screaming. |
| (2) Digestive disturbances. |

PATHOLOGY.—

1. Macroscopic.	<div>Hypertrophic Variety.</div> <div>Exudative Variety.</div>	<div>a. Pharynx.</div> <div>(a) Mucous membrane swollen, congested, granular, ulcerated (<i>rare</i>), with prominent veins, covered with viscid mucus, dotted with enlarged follicles.</div> <div>a. Shape. Oval, hemispherical.</div> <div>β. Size. Three to six millimetres in diameter. Two millimetres in height.</div> <div>γ. Color. (a) Yellowish white (<i>semi-transparent</i>)</div> <div>(b) Deep red (<i>semitransparent</i>).</div> <div>b. Faucial pillars. Reddened, swollen.</div> <div>c. Tongue. Swollen, congested.</div> <div>d. Larynx. Swollen, congested.</div> <div>a. Pharynx. (a) Follicles filled with desiccated secretion.</div>
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SYMPTOMS.—

1. Local.	<div>(1) Nose.</div> <div>a. Coryza frequent.</div> <div>b. Discharge mucous or muco-purulent.</div> <div>c. Epistaxis frequent.</div> <div>(2) Oro-pharynx.</div> <div>a. Respiration largely oral.</div> <div>b. Voice nasal, hoarse, easily fatigued.</div> <div>c. Cough short, dry, frequent, irritable, hacking.</div> <div>d. Expectoration scanty, viscid, mucous, blackish, blood-streaked (<i>occasional</i>).</div> <div>e. Salivation profuse, watery at first, later viscid.</div> <div>f. Deglutition uncomfortable; constant desire to swallow; dysphagia (<i>occasional</i>).</div> <div>g. Breath foul.</div> <div>h. Tongue coated.</div> <div>i. Sense of taste impaired.</div> <div>j. Pain slight or absent; sensation of discomfort, dryness, burning, tickling.</div> <div>k. Hawking frequent.</div> <div>l. Spasm of pharynx occasional.</div> <div>(3) Ears.</div> <div>a. Hearing slightly impaired.</div>
2. General.	<div>(1) Appetite variable.</div> <div>(2) Dyspepsia frequent.</div> <div>(3) Bowels constipated (<i>usual</i>).</div>

DURATION.—Three or four months to several years.

DIAGNOSIS.—1. From specific pharyngitis.

Chronic Follicular Pharyngitis.

1. Rare in children.
2. History of repeated acute attacks.
3. Mucous follicles enlarged, giving a granular appearance to the pharynx.
4. Ulcerations rare, and when present simple and superficial in character.
5. Coryza frequent but not prominent.
6. Epistaxis frequent.
7. No cachexia.
8. No cutaneous eruption.
9. Does not respond to specific treatment.
10. Duration very chronic.
11. Followed by no deformity.

Specific Pharyngitis.

1. Usually in children.
2. History of specific parental trouble.
3. No special involvement of the follicles.
4. Ulcerations common and often very extensive.
5. Associated with violent, ulcerative coryza.
6. Epistaxis rare.
7. Profound cachexia.
8. Characteristic cutaneous eruption.
9. Promptly responds to anti-syphilitic treatment.
10. Duration comparatively short.
11. Followed by deformity of nose and cicatricial deformity of pharynx.

2. From acute tubercular pharyngitis.

Chronic Follicular Pharyngitis.

1. Rare in childhood.
2. Slight constitutional involvement.
3. Follicular granulations over the pharynx, not bleeding when touched.
4. Ulcerations rare, and when present, simple and superficial.
5. No or slight emaciation.
6. No fever.
7. Prostration slight.
8. No cachexia.
9. Attended with very little or no pain.
10. No associated pulmonary lesion.
11. Course often protracted.
12. Prognosis good.

Acute Tubercular Pharyngitis.

1. Very rare in childhood.
2. Profound constitutional involvement.
3. Miliary granulations over the pharynx which bleed readily when touched.
4. Ulcerations common, irregular, shallow, grayish.
5. Rapid emaciation.
6. Persistent high fever.
7. Prostration great.
8. Marked cachexia.
9. Attended with intense pain.
10. Associated with tubercular disease of the apex.
11. Course rapid.
12. Prognosis fatal.

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) *Sedative alkaline sprays by post-nasal douche.*

a. Dobell's solution.

(2) *Insufflations.*

a. Powdered iodoform.

b. Powdered hydrastin, one part to three of powdered acacia.

(3) *Astringent lozenges.*

(4) *Destruction of granules by caustics.*

a. Fused nitrate of silver.

b. London paste.

c. Chromic acid.

d. Solution of silver nitrate.

e. Solution of chloride of zinc.

f. Solution of sulphate of copper.

g. Cautery wires (*Michel*).

- h. Blunt cautery knives (*Reisenfeld*).
- i. Galvano-cautery (*best*).
- (5) *For the hearing.*
 - a. Inflation with the Politzer air-bag.
- 2. *Constitutional.* (1) *Tonics and digestants.*
 - a. Quinine.
 - b. Arsenic.
 - c. Strychnine.
- (2) *Alteratives.*
 - a. Syrup of the iodide of iron.
- (3) *For the bowels.*
 - a. Mild saline laxatives.
- 3. *Prophylactic.* (1) Prevention of screaming and crying.
- b. Specific Pharyngitis.

DERIVATION.—*Species, facere.*

SYNONYMS.—1. Syphilitic sore throat.

2. Congenital syphilitic ulceration of the pharynx.

3. Hereditary syphilitic ulceration of the pharynx.

DEFINITION.—A congenital chronic inflammation of the mucous membrane of the pharynx, usually manifesting itself at a very early period after birth in the form of mucous patches upon the membrane of the mouth, palate, palatine folds, and less frequently the pharynx, resulting ultimately in the formation of ulcerations with great destruction of tissue.

ETIOLOGY.—1. *Exciting cause.*

(1) Inherited syphilis.

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| 1. <i>Macroscopic.</i> | { | (1) <i>Oro-pharynx.</i> |
| | | a. Mucous membrane swollen, inflamed; color, brick-red; containing mucous patches, later ulcerations and cicatrizations. |
| | | (a) <i>Ulcers.</i> Deep. |
| | | (b) <i>Edges.</i> Sharp cut, undermined, surrounded by glassy-looking areola. |
| | | (c) <i>Growth.</i> Rapid. |
| | | (2) <i>Larynx.</i> |
| | | a. Mucous membrane swollen, inflamed, containing mucous patches and ulcerations. |

SYMPTOMS.—

- | | | |
|---|---|---|
| 1. <i>Local.</i> | { | (1) <i>Nose.</i> a. Coryza obstinate. |
| | | (2) <i>Oro-pharynx.</i> a. Respiration slightly obstructed, oral. |
| | | b. Voice normal or slightly hoarse; articulation nasal. |
| | | c. Breath foul. |
| | | d. Nursing interfered with. |
| | | e. Discharge profuse, muco-purulent or purulent, offensive (<i>frequent</i>). |
| | | f. Deglutition difficult at times. |
| | | g. Cough variable; short, dry, later moist. |
| | | h. Pain slight or absent (<i>usual</i>). |
| | | i. Formation of ulcers and pustules. |
| | | (3) <i>Larynx.</i> a. Stenosis from cicatricial contraction (<i>rare</i>). |
| | | (4) <i>Ear.</i> a. Tinnitus. |
| b. Deafness. | | |
| c. Purulent otorrhœa (<i>occasional</i>). | | |
| 2. <i>General.</i> | { | (1) Fever slight or absent. |
| | | (2) Cachexia profound. |
| | | (3) Emaciation great. |
| | | (4) Appetite poor. |

DURATION.—Short.

SEQUELÆ.—1. *Aural.* (1) Deafness.

2. *Local.* (1) Cicatricial contraction.

DIAGNOSIS.—1. From acute tubercular pharyngitis.

Specific Pharyngitis.

1. A congenital manifestation.
2. History of parental specific trouble.
3. In the early stage mucous patches upon the nose, mouth, lips, fauces, and pharynx.
4. In the late stage deep ulcerations with sharp-cut edges.
5. Ulcerations surrounded by the characteristic inflammatory areolæ of syphilis.
6. Pain slight or absent.
7. Little or no febrile action.
8. Attended by obstinate coryza.
9. Emaciation and loss of strength great.
10. Attended by the symptoms of constitutional specific trouble.
11. Responds promptly to antisyphilitic treatment.

Acute Tubercular Pharyngitis.

1. Rare in childhood.
2. History of scrofula or inherited pulmonary trouble.
3. In the early stage small gray, bleeding, granulations occurring in patches over the pharynx.
4. In the late stage large, irregular, superficial ulcerations upon the pharynx.
5. Ulcerations not surrounded by areolæ of inflammation.
6. Pain intense, sharp, lancinating.
7. Persistent and high fever.
8. No symptoms of coryza.
9. Emaciation and loss of strength rapid and progressive.
10. Attended by the symptoms of pulmonary disease.
11. Rapidly runs to a fatal termination.

2. From chronic follicular pharyngitis (*vide*).

3. From scrofulous pharyngitis (*vide*).

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) *Caustic and astringent sprays and lotions.*

- a. Alum.
- b. Borax.
- c. Weak solution of sulphate of zinc.
- d. Weak solution of sulphate of copper.
- e. Tincture of iodine
- f. Strong solution of chloride of zinc
- g. Strong solution of nitrate of silver

for extreme ulcerations.

(2) *For the hearing.*

a. Inflation with Politzer's air-bag.

2. *Hygienic.* (1) Proper clothing.

(2) Cleanliness.

(3) Good nutritious food.

3. *Constitutional.* (1) Mercurials (*early stage*).

(2) Iodides (*late stage*).

c. Scrofulous Pharyngitis.

DERIVATION.—*Scrofula*, a breeding sow?

SYNONYMES.—1. Scrofulous sore throat.

2. Strumous pharyngitis.

3. Scrofulous ulceration of the pharynx.

DEFINITION.—Essentially a disease of childhood, consisting in a chronic inflammation of the mucous membrane and submucous tissues of the pharynx, and characterized by the formation of large ulcerations of slow growth associated with profound debility and depression of the system with marked anæmia.

VARIETIES.—1. Mild.

2. Severe.

ETIOLOGY.—1. *Predisposing causes.*

(1) Age, childhood.

(2) Inherited syphilis.

(3) The scrofulous diathesis.

PATHOLOGY.—

1. *Macroscopic.* { (1) *Oro-pharynx.*
 a. Mucous membrane inflamed, reddened, containing ulcerations.
 (a) *Size.* Large.
 (b) *Shape.* Irregular.
 (c) *Surface.* Deep.
 (d) *Edges.* Sharply defined, slightly raised, everted with no areola.

SYMPTOMS.—

1. *Local.* { (1) *Oro-pharynx.* *a.* Voice hoarse (*at times*).
 b. Tongue coated.
 c. Deglutition uncomfortable, difficult (*occasional*).
 d. Pain slight, often absent.
 e. Expectoration slight, muco-purulent.
 f. Formation of ulcers of slow growth.
2. *General.* { (1) Invasion insidious through several months.
 (2) Debility great.
 (3) Anæmia marked.
 (4) Appetite poor.
 (5) Fever absent or slight.

DIAGNOSIS.—1. From specific pharyngitis.

Scrofulous Pharyngitis.

1. Develops during childhood.
2. Invasion insidious.
3. History of struma.
4. Patient presents the strumous appearance.
5. Ulcerations in the pharynx not surrounded by areolæ.
6. Edges of ulcers slightly raised and everted.
7. Ulcerations slowly destructive.
8. Discharge slight, muco-purulent.
9. No coryza.
10. No cutaneous eruption, nor as a rule is there localized disease elsewhere.
11. Not followed by great deformity.

Specific Pharyngitis.

1. Develops soon after birth.
2. Invasion acute.
3. History of parental specific trouble.
4. Patient may present a healthy appearance.
5. Ulcerations surrounded by the characteristic areolæ of congestion and inflammation.
6. Edges of ulcers sharply cut and undermined.
7. Ulcerations rapidly destructive.
8. Discharge profuse, muco-purulent or purulent, offensive frequently.
9. Associated with obstinate coryza.
10. Characteristic cutaneous eruption, and associated symptoms of constitutional syphilis.
11. Followed by marked deformity.

2. From acute tubercular pharyngitis (*vide*).

PROGNOSIS.—Good.

- TREATMENT.—1. *Local.* (1) *Daily alterant and stimulant applications.*
 a. Tincture of iodine (*full strength*).
 b. Sulphate of copper, gr. 5-15 to 3i water.
2. *Constitutional.* (1) *Alteratives.*
 a. Cod-liver oil.
 b. Syrup of the iodide of iron.
 c. Syrup of the hypophosphates.
- (2) *Tonics.*
 a. Quinine.
 b. Arsenic.
3. *Hygienic.* (1) Nutritious food.
 (2) Fresh air.
 (3) Change of residence to the sea-shore.

Diagnostic Table of Ulcers of the Pharynx.

	Acute Follicular Pharyngitis.	Acute Tubercular Pharyngitis.	Varicolar Pharyngitis.	Chronic Follicular Pharyngitis.	Specific Pharyngitis.	Scrofulous Pharyngitis.
Site.....	1. Mucous membrane of oro-pharynx.	1. Palate. 2. Palatine folds. 3. Pharynx.	1. Mucous membrane of oro-pharynx.	1. Mucous membrane of pharynx.	1. Mucous membrane of oro-pharynx.	1. Mucous membrane of oro-pharynx.
Size.....	Small.	Large.	Small.	Small.	Large.	Large.
Shape.....	Round.	Irregular, lenticular.	Circular.	Irregular.	Irregular.	Irregular.
Surface.....	Shallow.	Shallow; base, caseous; grayish.	Shallow, reddish floor.	Shallow.	Deep.	Deep.
Edges.....	Well defined, surrounded by circumscribed zones of congestion and inflammation.	Indistinct, hyperæmic, undermined, no areola.	Well defined.	Indistinct.	Sharp cut, undermined, surrounded by glassy-looking areola.	Sharply defined, slightly raised, everted, no areola.
Discharge.....	Muco-purulent, thick.	Mucous or mucopurulent, scanty, frequently blood-streaked.	Muco-purulent, thick, viscid, profuse.	Mucous, scanty, viscid, blackish, occasionally blood-streaked.	Muco-purulent or purulent, profuse.	Muco-purulent, scanty.
Odor.....	None.	.....	Offensive.	None.	Frequently fetid.	None.
Deformity.....	None.	None, or slight of pharynx.	None.	None.	Great, cicatricial.	None.
Age.....	Any.	Early adult.	Any.	Early adult.	Congenital.	Childhood.
Frequency.....	Common.	Rare.	Rare.	Very rare.	Common.	Common.
Growth.....	.....	Rapid.	.....	.....	Rapid.	Slow.

2. *Neuroses of the Pharynx.*

DERIVATION.—*Νεῦρον*, a nerve.

DEFINITION.—Functional disorders of the pharynx, due to the involvement of its nerve-supply, either sensory or motor or both, in various disease processes.

- VARIETIES.—1. Anæsthesia.
2. Hyperæsthesia.
3. Paræsthesia.
4. Spasm.
5. Paralysis.

(1) ANÆSTHESIA OF THE PHARYNX.

DERIVATION.—'Αν, not; *αἰσθησις*, understanding.

DEFINITION.—A rare condition in childhood, though occasionally encountered, characterized by a loss of sensation, either partial or complete, in the pharyngeal mucous membrane, due to a paralysis of the sensory nervous supply following diphtheria or extensive syphilitic or tubercular ulceration.

- TREATMENT.—1. *Local.* (1) Galvanism.
(2) Feeding by stomach-tube (*extreme cases*).
2. *Constitutional.* (1) *Tonics.*
a. Strychnine.

(2) HYPERÆSTHESIA OF THE PHARYNX.

DERIVATION.—'Υπέρ, over; *αἰσθησις*, understanding, perception.

DEFINITION.—A condition of the pharynx frequently seen in children, characterized by a greatly-increased sensitiveness of the mucous membrane, of no special importance clinically, and usually calling for no treatment.

(3) PARÆSTHESIA OF THE PHARYNX.

DERIVATION.—Παρά, wrong; *αἰσθησις*, understanding.

DEFINITION.—A rare condition of the pharynx in childhood, characterized by the existence of peculiar subjective sensations, as of heat, pricking, swelling, or weight, frequently hysterical in origin, and giving rise to a vast amount of discomfort to the patient.

ETIOLOGY.—1. *Predisposing cause.*

(1) Hysteria.

2. *Exciting causes.*

(1) Irritation of foreign bodies in fauces.

(2) Ulcerations in the pharynx.

(3) Varicose veins at the base of the tongue.

TREATMENT.—1. *Local.* (1) *Astringent sprays.*

a. Tannic acid.

(2) Removal of foreign body, if present.

2. *Constitutional.* (1) *Tonics.*

a. Quinine.

b. Arsenic.

c. Strychnine.

(2) *Anti-rheumatics.*

a. Salicylate of sodium.

b. Gualacum.

(4) SPASM OF THE PHARYNX.

DERIVATION.—Σπασμός, a spasm.

DEFINITION.—A rare condition in childhood, characterized by paroxysmal occlusion of the pharynx with difficulty or impossibility of deglutition, and by a course of long duration.

842 DORLAND: *Affections of the Respiratory System.*

ETIOLOGY.—1. *Predisposing causes.*

- (1) Chronic pharyngitis.
- (2) Incomplete mastication of food.

2. *Exciting cause.*

- (1) Acute inflammation of the uvula or pharynx.

DURATION.—Two to three years.

DIAGNOSIS.—Plain. By the passage of the œsophageal bougie.

PROGNOSIS.—Good.

TREATMENT.—1. *Local.* (1) Passage of bougies daily, or two or three times per week.

2. *Constitutional.* (1) *Tonics.*

a. Quinine.

(2) *Nervines.*

a. The bromides.

(5) PARALYSIS OF THE PHARYNX.

DERIVATION.—*Παράλυσις*, to weaken.

DEFINITION.—A comparatively frequent condition of the pharynx in which there is a loss of power of the pharyngeal muscles more or less complete, and generally more marked upon one or the other side, associated with symptoms of considerable gravity, but usually very amenable to treatment.

ETIOLOGY.—1. *Exciting causes.*

- (1) Diphtheria.
- (2) Retropharyngeal abscess (*occasional*).
- (3) Extensive ulceration.
 - a. Syphilitic.
 - b. Tubercular.

PATHOLOGY.—

1. *Macroscopic* { (1) *Pharynx.* a. Mucous membrane pale, relaxed, flabby.
b. Faucial pillars relaxed.

SYMPTOMS.—

1. *Local.* { (1) *Nose.* a. Anosmia partial.
(2) *Oro-pharynx.* a. Respiration impeded; dyspnœa or even apnœa occasional.
b. Voice nasal; articulation imperfect.
c. Expectoration difficult.
d. Sense of taste impaired.
e. Deglutition difficult; inability to swallow fluids.
(3) *Eyes.* a. Sight slightly impaired.
(4) *Ears.* a. Hearing slightly impaired.

DURATION.—Three weeks to several months.

DIAGNOSIS.—Plain.

PROGNOSIS.—Favorable.

TREATMENT.—1. *Local.* (1) Faradism.

(2) Feeding by stomach-tube or enema.

2. *Constitutional.* (1) *Tonics.*

a. Strychnine.

b. Iron.

DIET.—Liquid or semi-liquid.

SURGERY AND SURGICAL DISEASES OF THE PHARYNX.

1. *Fistula of the Pharynx.*DERIVATION.—*Fistula*, a water-pipe.

DEFINITION.—A rare condition of the pharynx characterized by a narrow opening in the anterior portion of the neck to one or the other side of the median line, from which exudes from time to time a few drops of pus.

VARIETIES.—1. Congenital.

2. Acquired (*external opening of abscess*).

DIAGNOSIS.—Plain.

PROGNOSIS.—Uncertain as regards cure.

TREATMENT.—1. *Local.* (1) *Application of caustics.*

a. Nitric acid.

b. Silver nitrate.

c. Galvano-cautery.

2. *Foreign Bodies in the Pharynx.*

SYNONYMES.—1. Corpora adventitia in pharynx.

2. Corps Etrangers dans le pharynx (*French*).3. Fremdkörper im Schlundkopf (*German*).4. Corpi stranieri nella faringe (*Italian*).

DEFINITION.—The lodgement of foreign substances of various kinds in the pharynx; generally by access, through the mouth, but occasionally though rarely by penetration of the integument, or by passage downward from the nasal channels.

ETIOLOGY.—1. *Exciting cause.*(1) Lodgement of extraneous substances (*pins, buttons, coins, bristles, fish-bones, pieces of food, stones, jack-stones, etc.*).

PATHOLOGY.—

- | | | | |
|------------------------|------------------|---|---|
| 2. <i>Macroscopic.</i> | { | (1) <i>Pharynx.</i> | a. Mucous membrane congested, inflamed, ulcerated. |
| | | | b. Presence of foreign body; often embedded in tissues. |
| | | (a) <i>Site.</i> | a. Tonsils. |
| | | | β. Epiglottis. |
| | | | γ. Larynx. |
| | | δ. Valleculæ. | |
| | (2) <i>Neck.</i> | a. Formation of abscesses and fistulous tracks (<i>occasional</i>). | |

SYMPTOMS.—

- | | | | |
|------------------|---|-------------------------|---|
| 1. <i>Local.</i> | { | (1) <i>Oro-pharynx.</i> | a. Respiration impeded more or less, often completely (<i>fatal result in few minutes</i>). |
| | | | b. Voice husky, aphonia (<i>occasional</i>). |
| | | | c. Pain slight, discomfort, pricking sensations; paræsthesia of the pharynx. |
| | | | d. Hawking frequent, violent. |
| | | | e. Expectoration profuse, mucous, often blood-streaked. |
| | | | f. Deglutition painful, impossible (<i>frequently</i>). |
| | | | g. Spasm of pharynx (<i>frequent</i>). |

DIAGNOSIS.—Plain.

PROGNOSIS.—Anxious.

CAUSES OF DEATH.—1. Suffocation.

2. Perforation of common carotid artery (*Bell, Fingerhuth*).

3. Caries of bodies of vertebræ (*Fleury et Schupfe*).

TREATMENT.—1. *Local.* (1) Removal of body.

(1) By swab of cotton.

(2) By forceps.

(3) By finger.

(2) Tracheotomy (*in urgent cases*).

2. *After treatment.* (1) *Astringent applications.*

(2) Sipping of ice-water

(3) Galvanism.

3. *Scalds and Burns of the Pharynx.*

DEFINITION.—Injury and destruction of the pharyngeal mucous membrane by the application of heat in any form.

ETIOLOGY.—1. *Exciting causes.*

(1) Inhalation of steam.

(2) Inhalation of flames.

(3) Inhalation of hot air.

PATHOLOGY.—

- | | | |
|------------------------|---|--|
| | { | (1) <i>Oro-pharynx.</i> |
| 1. <i>Macroscopic.</i> | | a. Mucous membrane reddened, inflamed, swollen, eroded; sloughing (<i>late stage</i>); color whitish (<i>early stage</i>), reddened with yellowish gray sloughs (<i>late stage</i>). |

SYMPTOMS.—

- | | | | |
|--------------------|---|---|--|
| 1. <i>Local.</i> | { | (1) <i>Oro-pharynx.</i> | a. Respiration impeded; dyspnœa frequent. |
| | | | b. Voice husky, lost. |
| | | | c. Tongue coated, eroded. |
| | | | d. Pain severe, smarting. |
| | | | e. Discharge profuse, purulent. |
| | | | f. Deglutition difficult, painful, impossible. |
| | | | g. Formation of erosions and ulcerations. |
| 2. <i>General.</i> | { | (1) Complexion pallid. | |
| | | (2) Skin moist, cool (<i>during shock</i>), afterwards hot. | |
| | | (3) Exhaustion great. | |
| | | (4) Fever high. | |
| | | (5) Pulse rapid. | |
| | | (6) Delirium frequent. | |

SEQUELÆ.—1. *Local.* (1) Chronic laryngitis.

(2) Stenosis of pharynx, larynx, and trachea.

DIAGNOSIS.—Plain.

PROGNOSIS.—Grave.

CAUSE OF DEATH.—1. Exhaustion.

2. Shock.

3. Edema of larynx with suffocation.

TREATMENT.—1. *Local.* (1) *Anodyne applications.*

a. Sucking of ice.

b. Cold compresses to neck.

(a) Ice-bag.

c. Inhalation of anodyne vapors.

- (2) *Mucilaginous and soothing drinks.*
 - a. Barley water.
 - b. Rice water.
 - c. Cod-liver oil and lime-water, small doses (*H. D. Palmer*).
- (3) Tracheotomy (*for urgent dyspnoea*).
- 2. *Constitutional.* (1) Anodynes (internally or hypodermically).
- (2) Nutritious enemata.

FORMULÆ.—1. Rice-water, barley-water, etc.

S.—Wash four tablespoonfuls of rice; put it into two quarts of water with a little salt, and boil it down to one quart, and then add sugar and a little nutmeg. If desired, may add a pint or a half-pint of milk before taking from the fire, if there is any tendency to diarrhoea. Barley, sage, tapioca, or cracked corn may be prepared in the same way.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Zinnis: The Treatment of Chronic Intestinal Catarrh in Children. (*Arch. f. Kinderh.*, xiii. 1 and 2.)

1. Sixteen children with an average age of eight months, suffering with chronic catarrh, and already in an atrophic condition, had an average weight of three thousand four hundred and twenty-three grammes each on the day of their reception into the hospital, in which they come under the author's observation.

2. They were kept in the hospital for varying periods of time, but the average was eighty-one days, and the average gain in weight during that period was one thousand nine hundred and twenty-five grammes.

3. The daily increase in weight was from ten to fifty-six grammes; it averaged twenty-nine grammes.

4. We should never despair of the recovery of children suffering with chronic intestinal catarrh, no matter how far advanced the atrophic process is.

The treatment of this disease should be principally dietetic, but medicaments will serve as adjuncts. In children who are only a few months old and nursed exclusively at the breast of a mother or nurse, chronic intestinal catarrh will be due either to irregular and frequent nursing, or to the fact that the character of the milk is unsuited to the age of the child, or is

rendered unsuitable by a recurrent menstruation, a pregnancy, or some chronic disease of the mother or nurse.

Should the intestinal disturbance be due to irregular and frequent nursing, of course, the latter must be properly regulated. If the cause lies in the milk furnished by the mother or nurse, then another nurse must be procured; not to do it would jeopardize the child's life. If the child is fed from the bottle, the physician must see that the bottle is properly cared for. If a nursing child is being also fed with rice or wheaten flour-gruel, or other substances of a similar character, they must all be removed from its diet. If the child must have something in addition to the supply from the breast, cows' or goats' milk may be given three or four times daily in the intervals of nursing, and about three or four ounces at a time with a little sugar and lime-water mixed with it. If the evacuations are slimy or yellow and have no clots of casein, or only very small ones, bismuth may be given in twenty-five centigramme doses four times daily. If the stools are green and contain numerous lumps of casein, and are, moreover, accompanied by severe abdominal pain, bismuth and lime-water with a little fennel-water may be given. Or, if the trouble persists, the infusion of colombo root may be added to the bismuth, thus—

R Infusi radicis colombo, 75 grammes;
Bismuthi subnitr., 3 grammes;
Syr. auran. flo., 15 grammes.
Sig.—Two coffeespoonfuls every two hours.

For children one or two years old, who have been weaned too early and have been fed on substances illy adapted to their condition, the following is suggested :

If the child is having only five or six movements in twenty-four hours, is pale, his muscles flabby, has little or no fever and considerable vitality, he may be fed with gruel made from cows' milk and pulverized rice or arrow root. It may be given every three hours. During the night he may have a drink of cows' milk with lime-water twice. This diet must be kept up for a month. Also before each meal and at bedtime a powder should be given containing a grain or a grain and a half of quinine, and two and a half grains of bismuth. If the trouble does not yield, one may add one or two coffeespoonfuls of syrup of colombo four times daily, or an infusion of the root with bismuth as in the foregoing formula.

If, however, the diarrhœa is very severe and of long standing, the movements numbering twelve or more per day, atrophy being pronounced and fever and thirst constant; if, more-

over, the child cries all the time and emaciation is rapidly advancing, only one thing can be done, and that is to use an exclusive diet of milk. The following is recommended: During the first two days two dessertspoonfuls of clear warm milk must be given every two hours. From the third day three spoonfuls must be given at the same intervals. After four days the milk may be given at longer intervals and in larger quantities. This diet must be continued three or four weeks, when the gruels may be given, this diet continuing until the intestinal catarrh is cured. If the milk diet is not satisfactory, asses' milk must be procured, and if this fails, a wet-nurse must be provided even though the child has long been weaned. This proposition involves great difficulties, but has often been the means of saving life. In some cases in which recovery has almost taken place it may be safe to vary the milk diet with broth from boiled or stewed meat, which may be given in dessertspoonful doses four times daily. Or one may give small portions of raw meat in balls as large as a hazel-nut, three being given every three hours for several days. In addition to the foregoing it is sometimes advisable to use gold, as in the following formula:

R Auri, .20 gramme;
 Mellis, 125 grammes.

Sig.—One coffeespoonful in the morning, and two in the afternoon.

Other drugs have been used, but little benefit has been derived from them. Much benefit *has* been derived, however, from the use of aromatic baths, sulphur baths, baths impregnated with chestnut leaves, and plenty of fresh country air.

A. F. C.

Monti: Investigations upon and Analyses of Human Milk. (*Arch. f. Kinderh.*, xiii. 1 and 2.)

The following conclusions are drawn by the author from his investigations:

1. Every specimen of human milk which has a specific gravity of 1030 to 1035, and also from three to five per cent. of fat elements, in which also the specific gravity increases in the same proportion in which the fat elements increase, if both exceed the limits stated, and every specimen which also shows little variation in these elements during the nursing period, may be considered good and useful for the child who is to receive it for food.

2. Menstruation exercises no constant influence upon the specific gravity and the fatty elements of milk. In some of the cases which were investigated by the author, however,

there was an increase in the quantity of fat, which disappeared with the disappearance of menstruation.

3. In those cases in which the mother's milk reached a high specific gravity during the period of lactation, and the fatty elements were in relatively small quantity, reckoning upon the standard which has been mentioned, the children did not thrive. Such a quality of milk must, therefore, be considered as not useful for a nursing infant.

4. The excessive quantity of fatty constituents in human milk can be caused very readily by pathological processes, as by mastitis, or by any other extensive febrile process from which the mother may be suffering.

5. Also as a consequence of pathological processes of long duration, a rapid or gradual diminution in the quantity of fat in the milk is sometimes observed.

A. F. C.

Kraus: The Use of Certain New Medicaments in Treating the Diseases of Children. (*Arch. f. Kinderh.*, xiii. 1 and 2.)

Iodol.—The absence of taste and odor of this substance, the readiness with which it is broken up, and the large percentage of iodine which it contains, indicate the usefulness which it may have in internal medicine. Cervesato has used it satisfactorily in the treatment of torpid swellings of lymph-glands which have not suppurated. To a small extent it has been used in the treatment of scrofulous phenomena of the mucous membrane, and especially the membrane of the nose and pharynx. Cervesato used it in daily doses of half a gramme to a gramme and a half, according to age. Externally he used an ointment, with vaseline one to fifteen, and also sprinkled the iodol in powder upon surfaces where it was indicated. It has been found useful in many skin affections in scrofulous persons. It is less efficient, in the author's experience, in the mucous membrane diseases of such persons. Great improvement was seen from its use in two cases of prurigo of long duration, in which almost everything conceivable had previously been tried in vain. It was used externally in a five-per-cent. ointment, and internally in powders, containing half a gramme, three times daily. In omphalitis, chronic eczema, rhinitis, stomatitis, and vulvitis it was also efficient. No bad effects were ever observed after its internal use, and it was never used in larger than half a gramme doses.

Tincture of cascara sagrada.—This is an alcoholic extract from the bark of *rhamnus purshiana*, and is a mild and unirritating laxative, which may be given to children without hesitation. Its bitter taste may be concealed in syrup, and half a

teaspoonful of each be given at a dose. It seldom causes watery, almost always thick discharges.

Fluid extract of rhus aromatica.—In cases of nocturnal enuresis this has been found very satisfactory. It evidently acts by stimulating the smooth muscular fibre of the bladder. It may be given in five- or ten-drop doses, two or three times daily, in milk. It is of value for paresis of the muscular structure of the bladder only so long as the bladder is under its influence,—that is, it produces no permanent benefit. Of seven cases in which it was used, in only one did it produce a radical cure. It is very useful, however, as a palliative.

Tannate of pelletierine.—This alkaloid is prepared from the bark of pomegranate root, and is well recommended as a vermifuge for lumbricoids. It is to be given in doses of four to six grains, and is usually well tolerated by patients. This is a matter of considerable importance, for most of the vermifuges are nauseating mixtures, especially to children, for whom they are principally designed. The author's experience with this substance has not shown it to be as efficient as some of the other vermifuges.

Aristol.—This substance has been used by the author in chronic swelling of the mucous membrane of the nose and pharynx, also in aphthous, stomatitis, and in eczema. It was also effective in the rhinitis of scrofulous persons. It is used with a powder-blower directly to the diseased surface. In treating chronic eczema, the crusts must first be softened with oil or fat, then removed, and the aristol blown on. Only negative results were obtained with this substance in stomatitis, aphthosa, and pharyngitis, also in vulvitis. In psoriasis, Gaudin has stated that he has obtained excellent results; Hughes reports good results with its use in rhinitis sicca and ozæna specifica. Aristol may be used as an ointment as well as a powder, ten parts being combined with fifty of lanolin or vaseline. It may also be used as a dusting-powder in combination with zinc-powder.

A. F. C.

Schlichter: The Influence of Menstruation upon Lactation. (*Arch. f. Kinderh.*, xiii. 1 and 2.)

Until very recently there have been two entirely different views in regard to the influence of menstruation upon lactation. Heretofore it has been necessary to weigh the child and obtain an accurate account of its general condition and the condition of its stools before and after the menstrual period of the one who nursed it, and also to make an analysis of the milk during and after menstruation. Variations in the composition of the milk must also be noted for each day. During

and after menstruation these variations were found to be as follows:

In casein there was an average difference of five-hundredths per cent. in favor of the milk secreted during menstruation, and in fat twenty-four-hundredths per cent.

In albumen the average difference was three-hundredths per cent. against the milk of the menstrual period; in sugar nine-hundredths per cent., and in dry substance twelve-hundredths. These differences, however, are not so great as sometimes occur in a single day when menstruation is not present, hence the differences during that period ought not to work any particular harm.

Davis, of Chicago, has stated that animal germs were discoverable in the milk of pregnant women, and to a lesser degree in that of menstruating women, which might cause disease in children; but the bacteriological investigations of the author would lead to no such conclusion, for the milk under both conditions was sterile. The author's observations as to the effect of menstruation upon nursing children are included in the following conclusions:

1. Should menstruation occur within the sixth week after pregnancy, it would have no harmful influence upon the child.

2. Should menstruation occur before the sixth week, it could have no possible deleterious influence upon the development of the child.

3. Dyspepsia, intestinal catarrh, colic, etc., sometimes occur in a child during the menstrual period of the one who is nursing it, and should be treated in the same way as if they occurred at any other period, and not by a change of nurse. A. F. C.

Simon: The Passage of Pathogenic Micro-organisms from Mother to Fœtus. (*Arch. f. Kinderh.*, xiii. 1 and 2.)

The author's investigations with reference to the inheritance and transmission of infectious disease coincide entirely as to their results and conclusions with the well-known work of Birch-Hirschfeld in the same direction. The latter regards the transmission of the splenic-fever bacillus as firmly proven, and speaks of the method of transmission as a *growing through*, analogous to the penetration of the same bacillus into the inner portion of the lung. The author's experiments were made with white mice, puppies, and guinea-pigs, and he also used the anthrax bacillus. The studies were not made with cultures, but he sought to follow the progress of the micro-organism from the mother to the fœtus with the microscope. Puppies served best for his experiments, the uterus being embedded, cut through, and investigated in its individual parts. In the

membranes, including that which covered the funis and the amniotic fluid, bacilli were found in abundance, and they appeared to have reached these points by way of the placenta. The foetus itself was covered with bacilli upon its surface, and they were also found at some depth in the tissues of the abdominal wall. Infection of the foetus itself was an uncommon occurrence, the reason for it not being evident, except that the composition of the foetal blood was not favorable to the life-conditions of the bacilli, and the latter consequently perished.

The duration of the disease-process played an important part in these experimental studies, three periods or stages being readily distinguished. When it had lasted the ordinary period of time, the maternal portion of the placenta was found abundantly supplied with bacilli, and also the foetal tissue, membranes, amniotic fluid, and superficial portion of the foetus. If the disease were of somewhat longer duration, the foetus was found to contain bacilli, both by microscopical examination and by culture experiment. Together with the question of duration of the disease, other questions were of importance in their bearing upon the matter of transmission of the bacilli from mother to foetus, including the greater or lesser resistance of the maternal compared with the foetal tissue, the virulence of the infecting poison, the condition and the disposition of the leucocytes, and many others. A. F. C.

Troitzky: Gastric Digestion in Small Children, and the Therapeutic Significance of Irrigation of the Stomach. (*Jahrb. f. Kinderh.*, xxxii. 4.)

The following propositions include the substance of the author's paper:

1. The presence of completely coagulated casein in the stomach does not warrant one in speaking of the excessively acid contents of the stomach, for a precipitation of the casein from the solution can only happen in consequence of the influence of *labferment*, and this acts in the presence of an alkaline reaction.

2. The change of the casein, which has begun to coagulate, to the state of solution with subsequent peptonization is due to the simultaneous action of acid and pepsin, and the stomach takes up the albumen the more successfully and completely the more the quantity and composition of the digestive secretions approach the normal.

3. Lactic acid must be regarded as a normal constituent of the gastric juice at least in very young children and in those with whom the diet is exclusively one of milk. Its formation is encouraged by the milk-sugar which is abundant in the

milk. This constant presence of lactic acid has its effect alike upon the digestive process and upon the action of microbes.

4. Hydrochloric acid plays the principal part in digestion, but its determination is not always easy, because the casein of the milk has the property of holding it. Until digestion begins, hydrochloric acid may usually be found in small quantities in the stomachs of very small children. As digestion increases in activity, the quantity of hydrochloric acid will also increase.

5. The quantity of acid in the gastric juice of children is relatively very much smaller than in adults, and is conversely as the quantity of food taken into the stomach.

6. The average time during which food stays in the stomach of small children is two hours.

7. Slight mechanical, thermic, or chemical irritation of the gastric mucous membrane will increase the acidity of the secreted juice and favor a rapid emptying of the stomach. Alcohol stays digestion, but counteracts fermentation.

8. The part in digestion which is played by the stomach of the child is an important one, even though it does not appropriate all the albumen which comes into it.

9. The anti-microbic properties of the gastric juice are undoubted and are due to the presence of free acid, especially hydrochloric acid. In consequence of the slight acidity of the gastric juice in the stomach of children, it cannot act as forcibly to retard fermentation as the same secretion in the adult.

10. It has not yet been determined what significance certain micro-organisms have upon digestion.

11. Functional disturbances in the stomach of children are due to changes in the quality and quantity of the gastric juice, the regular exchange in its ingredients being disturbed, or the parts being subjected to physical or chemical changes which are not yet understood.

12. The quantity of gastric juice in the stomach of children may be lessened without necessarily causing an increase of lactic acid, or the appearance of acetic or butyric acids.

13. When the normal secretion of the stomach is deficient, acids are developed which are not suitable for normal digestion.

14. The presence of too much mucus in the stomach may paralyze the digestive activity of the gastric juice, though the latter may be normal as to quantity and as to composition.

15. If too much food enters the stomach, or if it remains there too long, an insufficient quantity of gastric juice will be secreted for its digestion.

16. The majority of gastric dyspepsias in children are caused by the deficiency of hydrochloric acid in the gastric

juice. Functional disturbance is rarely caused by excessive secretion of gastric juice

17. Diseases of the stomach with definite anatomical peculiarities manifest themselves by the presence of an abundance of mucus, serum, and inflammatory elements. The severer the disease and the longer it lasts the more conspicuous will be these elements.

18. With inflammation of the gastric mucous membrane digestion is reduced to a minimum, even though the gastric juice remains normal in quantity and quality.

19. Disturbed digestion is accompanied by the appearance of an increased number of fermentation-phenomena, with the formation of acids foreign to the stomach and its work, as well as by the breaking up of albumen and the formation of decomposition-products. The substances which are submitted to fermentation are the fats and the excess of mucus, which ordinarily do not undergo such changes.

20. A diminution or failure in the presence of hydrochloric acid in the stomach signifies the formation of pathogenic elements in the soil favorable to such development, the antimicrobial power of a sufficient quantity of hydrochloric acid being wanting.

21. It is quite possible that certain forms of micro-organisms, or their products, are responsible for the different diseases in the stomachs of children. The means for treating the abnormal conditions of the stomach, which has been found extremely efficient in numberless cases, is irrigation. A. F. C.

Mettenheimer: The Iodoform Sponge in the Treatment of Children's Diseases. (*Jahrb. f. Kinderh.*, xxxii. 4.)

The iodoform sponge as a dressing was recommended a few years ago by an American. Cut in larger or smaller pieces, according to requirements, it has been extensively used by the author as a dressing for fistulæ in tuberculous disease of the bones, for suppurating glands, for scrofulous tumors of the skin, and for fungous abscesses. It has not been as useful in some conditions as iodoform powder, and it was most effective in the treatment of shallow, scrofulous ulcers of the skin. These should be disinfected and curetted, or the latter may be omitted if the ulcer is a small one, after which small pieces of iodoform sponge should be laid upon the diseased surface and bound in position with adhesive plaster. In two or three days the dressings should be removed, when it will be found that the sponge has absorbed the secretions, and that the diseased surface is covered with granulations. In some cases the sponge becomes attached to the wound-surface and may be

more or less absorbed. The time required for the healing of these processes varies in different individuals, but the process itself is an astonishing one, and will often bring success where all other means of treating tuberculous ulcers have failed. For the healing of fungus ulcers and abscesses in the face of small children this treatment is of especial value, and it enables one to avoid the use of a bandage about the head, which is about to be especially irksome to children. Disfiguring scars may also be largely avoided by this treatment. The sponge is often better adapted for the stuffing of pus sinuses and fistulæ than iodoform gauze. In cases in which suppuration of the mastoid process has required a deep incision and removal of the diseased portions fistulæ are apt to persist. If these are stuffed with iodoform sponge and the dressing removed two or three times a week, moderately quick and firm healing will be very likely to take place. Of course the tracks must not be so firmly packed that the secretions cannot get out, otherwise infiltration of surrounding tissues with possible febrile symptoms might result. The sponge may be prepared in the following manner: After it has been cleansed by heating, it should be left for five days in a five-per-cent. solution of hydrochloric acid. Then it should be washed and dried, and left two days in a seven-and-a-half-per-cent. solution of iodoform and sulphuric ether. The ether is then evaporated till the sponge is quite dry, and then it is to be kept in well-closed glass jars. It is best to use small, tender sponges with large holes and points.

A. F. C.

Seiffert: The Etiology of Acute Digestive Disorders in Infants. (*Jahrb. of Kinderh.*, xxxii. 4.)

Investigation in Germany was first directed to the great mortality of infants during the summer months by the published report in America concerning the "summer disease of the children of New York." Bedna also called attention to the fact that the contents of the intestines in infants who suffer from digestive disorders are similar to organic matter which has undergone fermentation or putrefaction, and that probably these diseases are due to processes of decomposition. At that time, however, the process of fermentation was not thoroughly understood.

Eichstedt called attention to the similarity of the dyspeptic faecal evacuations of infants with fermenting substances. Attention was next called to the high atmospheric temperature and depression of the surface (ground) water during the months when summer-complaint prevails. These facts, together with the yearly occurrence of the disease in an endemic

form, rendered it possible that the vitalistic fermentation theory of Pasteur might throw light upon the pathology of the condition. Then Baginsky showed that with the increase in the temperature the mortality among infants from diarrhœa increased, especially in neighborhoods where the hygiene of the home was bad. Thus the disease might arise from miasmatic influences proceeding from fermenting substances or from direct decomposition of milk in consequence of the action of spores upon it.

Meissner agreed with Baginsky's views, especially observing that the disease occurred when children had been fed from dirty bottles, and that breast-fed children seldom suffered with it. Many other observations followed the foregoing, the opinion steadily gaining ground that the disease was due to fermentation.

Le Sage has divided the digestive disorders into the following classes:

1. That in which the cause consists in fermentation of the contents of the stomach.

2. The lenteric, which is due to deficient digestion of milk.

3. Diarrhœa, caused by reflex processes in teething, and in taking cold.

4. Infectious diseases of the intestines, which may be due to poisons resulting from the decomposition of the food by micro-organisms, or to general infection with a specific parasitic bacillus, analogous to the process in cholera.

5. A bilious green diarrhœa.

Escherich distinguishes three forms of digestive disorder caused by the use of decomposed milk:

1. Isolated fermentation of the stomach, causing retching, acid vomiting, and dilatation of the stomach.

2. Acid diarrhœa, caused by fermentation in the large intestine, which is carried on without the presence of oxygen.

3. A colitis with feculent diarrhœa, caused by fermentation in the large intestine.

Clinical experience, as shown in the successful treatment of gastric disorders by irrigation of the stomach, and the antiseptic treatment of the entire alimentary canal, force the conviction that these disorders which are under discussion are the result of decomposition processes which are caused by bacterial agencies. Starting with the hypothesis that the contents of the alimentary canal are the substratum from which the intoxication which gives rise to gastro-intestinal disease proceeds, the following questions are submitted:

1. Do the contents of the stomach in dyspepsia in young

children have a relatively greater quantity of micro-organisms than the contents of the stomach of healthy children?

2. Is there a relation which can be determined between the relative quantity of germs in the stomach of sick infants and the intensity of the disease from which they are suffering?

3. What are the relations between the relative quantity of germs in the contents of the stomach and the intensity of the disease, on the one hand, and climatic factors which influence the destruction of the milk, the factor of temperature particularly, on the other hand?

To answer the foregoing questions, a quantitative bacteriological analysis was necessary of contents taken from the stomach of a living child.

Investigations of this character on an extensive scale were made by the author, and from these it was concluded that in the acute dyspepsias of infants one has to deal with spores, which are antagonistic to the acid of the contents of the stomach, are introduced with the nutriment, and develop luxuriantly at the temperature of the body. The phenomena of severe dyspepsias, and especially those of cholera infantum, are the phenomena of acute intoxication; hence, it is reasonable to seek for the cause of the disease in the poisons generated by the saprophytes of the contents of the stomach. These diseases are most destructive at the time when high temperature, through the action of micro-organisms, works destructive changes in food-substances, and almost disappear when the weather becomes cool. There are also cases which have the character and etiology of general infectious diseases. These diseases are not epidemic or endemic in the same sense as the continued fevers, lacking the characteristic development and history which such general infectious diseases have. For the further elucidation of the etiology of acute dyspepsias, the chemical changes which are caused in the milk by the bacteria found in the stomach must be studied, especially by experiments upon animals, subcutaneous or intravenous injections of the bacteria being made upon suitable animals.

A. F. C.

II.—MEDICINE.

Hahn: Rare Complications in Diphtheria (*Gaz. Méd.*, June 6, 1891.)

Schwalbe has referred to two important complications of diphtheria, secondary hemorrhage and pneumo-thorax combined, with subcutaneous general emphysema.

The hemorrhages may arise from various causes, which cannot always be traced. They may proceed from gangrenous or diphtheritic infiltration of a tracheotomy wound, or they may arise from degenerated granulation of that wound. A fatal case is narrated in which hemorrhage was due to erosion of a vessel near the wound, and involved in the gangrenous inflammation. Jenny has recorded three cases of hemorrhage of this character, in which the source of the bleeding was found and life was saved; also three others in which the issue was fatal. The most frequent cause of severe hemorrhages in diphtheria is the elimination of false membrane at the lower portion of the respiratory passage. The following are varieties of external hemorrhage: (1) Those resulting from gangrene of the nose or pharynx; (2) those which attend involvement of the tracheotomy wound by the diphtheritic process and necrosis; (3) those which follow rupture of a vessel near the wound; (4) those which follow rupture of a vessel from pressure of the canula and ulceration.

Internal hemorrhages upon the surface of the tracheal or bronchial mucous membrane may follow (1) an ulceration caused by the canula, (2) the elimination of false membrane with concomitant pulmonary hyperæmia, (3) simple pulmonary hyperæmia.

A. F. C.

St. Philippe: Treatment of Broncho-Pneumonia in Children, with Hypodermic Injections of Muriate of Quinine. (*Jour. de Méd.*, June 21, 1891.)

It is necessary to differentiate carefully between pneumonia complicated with enteritis and typhoid fever, between central pneumonia and the prolonged variety which is suggestive of tuberculosis. There are two indications for treatment: one due to a constant element, bronchitis; the other to an occasional element, the pulmonary lesion. The latter is by far the more important, for the existing congestion may be sudden, extensive, and so interfere with hæmotosis as to cause death in a few hours. Quinine acts upon the congestive element whether administered by the mouth, the rectum, or subcutaneously. Sulphate of quinine may be given in black coffee or with extract of licorice. With small and unruly children one must administer it by rectum or endermically. Such methods are slow in action and unreliable. It is far better to use it hypodermically, employing the following formula:

R Quin. mur., 2 to 4 grammes;
Glycerinæ;
Aquæ, aa, 10 grammes.

Sig.—One or two syringefuls may be injected according to the requirements.

Blisters may also be used with advantage, being applied over the region where râles are abundant. Should suffocative catarrh occur, one must use sinapisms, large fly-blisters, scarification, or leeches, according to the age of the child.

As supplementary medication, one may give five to twenty drops of the tincture of aconite-root in the course of the twenty-four hours, or one or two drops every hour, combining it with compound syrup of ipecac if the bronchitis is severe, or with syrup of quinquina or punch if the general condition is bad.

To calm the excitement, warm baths and a little antipyrin may be used; but opium is inadvisable. If the cough is paroxysmal, fumigations should be used.

In very severe cases, quinine and aconite should give place to subcutaneous injections of caffeine, to digitalis, and alcohol.

Inhalations of oxygen are to be preferred to inhalations of ether.

A. F. C.

Kuhl: Diabetes Mellitus in Children. (*Gaz. Méd.*, August 1, 1891.)

The author gives a number of distinguishing points between diabetes mellitus as it occurs in children, and the same disease as it occurs in adults.

In childhood, diabetes is found much more frequently in girls than in boys, while in adults males are more frequently attacked than females.

In children, the etiology of diabetes is more or less dominated by pathological heredity,—that is, the parents or ancestors have had diabetes or some disease of the nerve-centres. Frequently traumatism is a determining cause of the disease in early life.

In infantile diabetes, glycosuria always is a disease of considerable severity, and has a grave prognosis. Its evolution is usually more rapid than in adults. The transformation from a mild to a severe form of the disease is apt to occur more quickly in very young children than in those who are older.

A. F. C.

Luzet: Infantile Pseudo-Leuchæmic Anæmia. (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

This disease, which is peculiar to infants, has for phenomena an intense anæmia with leucocytosis of moderate extent, swelling of the spleen and liver, and passage into the blood of numerous red cells in the course of multiplication. The red cells are primarily an embryonic element in the blood, as shown by the studies of Hayem and Luzet, though this is contrary to the opinion of Neumann and Bizzozero, who affirm that it is transformed into hæmatine, and is not, as Hayem

and Luzet affirm, permanent, living and dead, as an embryonic element. The disease is a rare one and is identical with adenia. It has also been described by Von Jaksch. Its etiology is uncertain; it is only known that it occurs in early childhood and is preceded by gastro-enteritis. The anæmia produced by rachitis and syphilis is quite a different condition. The patient has a transparent pallor, suggesting chlorosis with a fine and white skin. There is no eruption and no swelling of the subcutaneous or abdominal glands, the digestive, respiratory, and circulatory functions are normal. The abdomen is greatly developed, distended, especially on the left side, and soft except over the regions of the liver and spleen. The kidney phenomena are *nil*. The disease lasts six to twelve months, death occurring with digestive complications, cachexia, or true leuchæmia. Post-mortem the liver will be found large but otherwise normal in appearance, and containing many formative elements of red cells, spleen somewhat inflamed at periphery, marrow of the bones red and diffuent.

A. F. C.

Escherich: Idiopathic Tetany in Children. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

The author has seen thirty cases of tetany in children ranging from eight to twenty-four months of age. The diagnosis was based upon the phenomenon of Trousseau, the facial phenomenon and exaggeration of the electrical and mechanical excitability of the nerves. Spontaneous contractures were observed at the beginning, though they were absent in several cases. In twenty-four of the cases there was also laryngospasm, two of them terminating fatally. The disease usually lasted from ten to nineteen days. The author thinks that the laryngospasm should be considered as an essential clinical feature in tetany, especially when it occurs in rachitis. The etiology of the disease is obscure. It is not due to heredity, anæmia, intestinal worms, or exposure to cold. It is especially prone to occur in the spring. The prognosis is good if there is no laryngospasm, but if that symptom is present, it may be necessary to perform intubation or tracheotomy. The treatment should consist in the use of phosphorus, cod-liver oil, bromides, etc. In certain cases of laryngospasm, the author thinks he has been able to detect latent tetany.

A. F. C.

Jullien: Hereditary Syphilis. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

The author has gathered the histories of 206 cases of pregnancy, in which there was syphilitic history. Of this number

113 resulted fatally for the children, 26 being terminated by abortion, 8 by still-birth, 69 by death at a very early age. Of the 93 living children 50 were syphilitic, and 43 only in good health. The deaths in early life were from the following causes: Meningitis 21, convulsions 8, diseases of the throat 12, diarrhoea and athrepsia 5, other diseases 23. Meningitis is the most frequent cause of death, though the diagnosis in all the cases recorded were not clear. Exceptions to the ordinary rules of heredity relating to children may be divided into several classes. In the first, syphilis in the child has only late manifestations. In the second, there are phenomena which may not be regarded as relevant to syphilis, but which are often observed in the children of syphilitics, such phenomena are tubercular meningitis, diphtheria, etc. In the third class are the exceptional cases which have been referred to by Diday, a child being born syphilitic of a mother who has previously had several children who were fed free from syphilis.

Tuberculosis is also believed by Barthèlemy to be a cause of death in subjects of hereditary syphilis, though the experience of the author does not warrant such an assertion.

A. F. C.

Bourges: The Anginas of Scarlatina. (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

The anginas which complicate scarlatina are the erythematous, pseudo-membranous, and gangrenous. Pseudo-membranous angina may be divided into early and late forms, for the two differ in etiology, pathogenesis, and prognosis, according as they appear at the beginning or only after the first week of the disease.

Early pseudo-membranous angina frequently appears to be unassociated with diphtheria on account of its benignity, its failure to extend or to affect the general condition, but there is nothing in its objective characters which admits of a careful discrimination from diphtheria. There are cases which are accompanied with pseudo-membranous coryza, croup, or paralysis of the palate which show all the characters of hypertoxic diphtheritic angina, but in which a diagnosis is impossible without a bacteriological examination. Delayed pseudo-membranous angina is usually of diphtheritic character.

As to evolution, the author distinguishes three varieties of precocious pseudo-membranous angina: the benign, which is characterized by membranes of not very great extent, by slight development of submaxillary adenopathy, and by absence of complications depending upon the angina; the grave, in which

the false membranes extend rapidly, and are persistent; the adenopathy, the fever, and the general symptoms are intense, and the duration is from nine to twenty-three days; the septic, in which there is a characteristic picture of hypertoxic angina. The author has studied thirty cases of angina bacteriologically. In seven cases of erythematous angina a streptococcus was always found. In five cases he isolated a coccus which he called coccus A; in three he found the bacterium coli commune, and in two the staphylococcus pyogenes albus.

In eighteen cases of precocious (early) pseudo-membranous angina the bacillus of Loeffler was found but once. In the other seventeen he found a streptococcus, in nine the staphylococcus pyogenes aureus, in four the bacterium coli commune, in one the coccus A, and in one the staphylococcus pyogenes albus. In four cases of delayed pseudo-membranous angina he found the bacillus of Loeffler three times. In the one case in which it was absent he found the streptococcus, and the bacterium coli commune. The coccus in chains, which is so frequently found in the complications of scarlatina, is identical with the streptococcus pyogenes.

A. F. C.

Bard: The Epidemiology of Rubeola. (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

The following conclusions refer to the contagiousness, incubation, and prophylaxis of the disease.

1. The germ of rubeola does not remain in a locality from which those who have suffered with the disease have gone away. The author has never seen a healthy child contract the disease from being in a room in which a sick person might have been only a few hours previously. Hence disinfection of the bed and furniture is unnecessary.

2. Contagion is always direct in an epidemic of this disease, from person to person, though the author admits with Sevestre that it passes through the intervening air.

3. Incubation is shorter in the intense than in the mild forms, but it is prolonged in cases which are benign and in feeble persons, whether from natural tendency or as the result of other sickness. It usually lasts from twelve to eighteen days, but may last twenty-one days.

4. The power of the contagion is such that in a favorable medium it attacks all who are susceptible to it. Hence when a school is closed on account of an epidemic, it is usually too late to be of benefit to those who have been attending the school.

5. Contagion is possible three or four days before an eruption is evident.

6. Broncho-pneumonia is a secondary additional infection, but may coexist with the rubeola and manifest a mixed infection. The symptoms of the lung-disease disappear early.

A. F. C.

Henschel: Dilatation of the Stomach in Children.
(*Arch. f. Kinderh.*, xiii. 1 and 2.)

The high mortality in infants and children from disorders of the digestive apparatus has long furnished a difficult problem in therapeutics to pediatricists, and the stomach is the organ which has demanded most earnest study. The therapeutical portion of the subject has been studied with especial earnestness since the French drew attention to the frequency with which dilatation of the stomach occurs in children. Dilatation of the stomach may enlarge the organ regularly or irregularly. The hour-glass form is a common example of irregular dilatation. It must necessarily produce thinning of the walls of the stomach, and if the condition is prolonged, fatty degeneration and atrophy of the muscular elements of the stomach must take place. The mucosa is anæmic or hyperæmic according to the catarrhal condition which obtains.

The causes of gastric dilatation are divided into two categories:

1. Those which are due to mechanical obstacles.
 - a. Congenital stenosis of the pylorus.
 - b. Overfeeding and overwork.
2. Those which result from muscular atony, and are caused by—
 - a. Irregular conditions of the constitution.
 - b. Abnormal fermentation in the stomach; this cause far exceeds all the others in frequency.

If dilatation is due to congenital stenosis of the pylorus, vomiting and pain will be present almost from the taking of the first food into the stomach; constipation and flatulence will also be present; anæmia, emaciation, and death will soon follow. Those cases of gastric dilatation which arise from constitutional disorders or from overloading manifest themselves more slowly, occasional attacks of vomiting being present, then loss of appetite, until at length the smallest quantities of food are refused. The belly is swollen and the bowels are constipated, the tongue is coated, but the temperature remains normal. Occasional attacks of gastric catarrh further weaken the patient, who finally dies exhausted. If dilatation is due to fermentation the course is more rapid; gastric catarrh is a more prominent symptom, and with it are associated severe nervous symptoms, chills, depression of the eyeballs, apathy,

convulsions, collapse, cyanosis, and dyspnœa. The most important symptom in making a diagnosis is, of course, the tympanitic note which is obtained by percussion. Another is the succussion sound, which is produced by the rolling about of the fluid in the stomach as the child is shaken from side to side; but this and other similar signs are not available if the child is suffering with diarrhœa, the fluid will also roll about in the intestines. The prognosis of this condition depends very much upon the condition of the child in general. It is absolutely bad if there is stenosis of the pylorus. The danger of the situation is increased by the fact that the resisting power of the system is lessened as the child is unable to take nourishment. He becomes more susceptible to intercurrent diseases, and yields to them more readily than when digestion is intact.

One of the most useful means ever devised for the relief of gastric dilatation consists in the irrigation of the organ. The soft sound is safer to introduce into the stomach for an irrigating tube than the hard one. It must not be passed too low lest the end be so bent that the return flow of fluids would be prevented. One may use for irrigation simply warm water or solutions of resorcin, benzoate of soda, or boric acid. If the dilatation is of long duration irrigation may be required twice daily. As to diet, Epstein recommends for the first few days albumen water, black tea, oatmeal gruel, and milk in small quantities. Starchy foods must be rigorously avoided. Comby advises only animal milk for very young children, in small quantities and at frequent intervals. For nursing children he advises to refrain from weaning as long as possible. Prophylaxis is, however, the best treatment; it is easier to avoid producing gastric dilatation than to cure it when produced.

A. F. C.

Strassmann: Influenza in the New-Born. (*Arch. f. Kinderh.*, xiii. 1 and 2.)

In the month of January, 1890, there were twenty sick infants under the author's observation at the Giessen Maternity, and eight of them were apparently suffering with influenza. The trouble usually began with the appearance of a clear greenish secretion at the nose, restlessness, frequent respiration, snuffles, hoarseness of the voice, and paroxysms of coughing. Aphthæ appeared in the mouth by the second or third day, and subsequently digestive disorders in the form of diarrhœa or constipation. The temperature was taken twice daily in the rectum and showed subnormal condition of heat. This was a marked feature in every one of the eight cases under obser-

vation. This phenomenon is not remarkable, however, if one remembers that in consequence of the infection there is deficient nutrition, imperfect action of the lungs, and general depression of the vital functions. In all the cases there was also loss of weight. Six boys were thus affected and two girls, the youngest being three and the oldest fourteen days old. Death resulted in one of the cases from pneumonia. In two of the cases there was conjunctivitis, and in a third blennorrhœa of the conjunctiva. The symptoms in general were those of the epidemic of influenza which was prevailing at that time.

A. F. C.

III.—SURGERY.

Parkin: Causation of Pes Cavus. (*The Lancet*, June 13, 1891.)

This deformity, by no means uncommon, was described as consisting of an increased height of the plantar arch, corresponding convexity of the dorsum, and shortening in the length of the foot of from half an inch to one inch and a half.

Associated conditions were: (1) Contraction of plantar fascia; (2) prominence of the balls of the toes; (3) deformity of the toes; (4) projection of the dorsal tendons; (5) contraction of the tendo-Achillis,—apparently a constant feature.

The literature of the subject was sparse and of little value. The following had been the suggestions offered as to causation: (1) Paralysis of the interossei muscles (Duchenne); (2) weakness of the peronei muscles (Mr. Golding Bird); (3) wearing of tight boots; (4) combined pull of tendo-Achillis and extensor longus digitorum; (5) contraction of plantar fascia. These considered seriatim all showed a want of accuracy and did not explain the condition at all.

Conclusion.—(1) Pes cavus was a secondary deformity, engrafted upon talipes equinus or equino-varus; (2) pes cavus was not congenital, though it might follow on congenital talipes equinus or equino-varus; (3) that it was the direct result of transmission of body-weight through a foot in the equine position; (4) that the changes in the soft parts and toes were adaptive or consecutive.

Pick: A Case of Intussusception; Laparotomy; Recurrence of Intussusception; Death. (*The Lancet*, June 13, 1891.)

So far as can be ascertained, this is one of the first cases in which laparotomy has been required a second time for a recur-

rence of the disease. The child was fifteen months of age. A fortnight before admission the child was taken suddenly ill with vomiting. Much green slime with blood was passed; the bowels remained loose.

Rather to the left, and a little below the umbilicus, a sausage-shaped tumor was felt. By the rectum an intussusception could be felt. An attempt to relieve the intussusception by filling the bowel with water by means of gravitation failed. Massage by manipulation of the abdomen was without effect. Finally, inflation of air was also unsuccessful.

Laparotomy was done. There was an invagination of the small intestine into the large, at the ileo-cæcal valve, the invaginated portion of the bowel extending as low as the anus. It was reduced without difficulty. The child was comfortable and free from symptoms for forty-eight hours. The bowels moved naturally twice. It was suddenly taken ill again with great pain, and the bowel was found protruding from the anus.

The abdominal wound was reopened, and the intussusception reduced a second time. There was much collapse, and the child died the same evening.

Necropsy.—The intestines were distended; there was no peritonitis; no intussusception; the small bowel was normal; the large bowel showed patches of congestion in the ascending colon; no evidence of constriction of the mesentery. The stomach contained dark fluid; the liver was pale; other abdominal organs normal. The lungs showed numerous dark-purple, broncho-pneumonic patches. The bronchi and trachea contained similar material to that found in the stomach.

Remarks.—In this case it was not until a thorough and patient trial of other means of reduction had been resorted to and failed that laparotomy was performed; and the operation on the following day seemed likely to prove a success.

The absolute cessation of all the previous symptoms of obstruction, and the healthy action of the bowels, seemed to prove that the intussusception was really reduced. Even after the reopening of the wound and the second reduction there seems no reason to doubt, from the post-mortem evidence, that the child might have recovered had it not been for the unfortunate accident of some of the vomited food finding its way into the air-passages, which was the immediate cause of death.

Anderson: Umbilical Fæcal Fistula. (*The Lancet*, April 25, 1891.)

The patient, a seven months child (male), was found on the day after birth to have a fæcal fistula at the umbilicus and an absence of development of the lower part of the large intestine.

He died of asthenia a fortnight afterwards, the function in the interval having been discharged normally, and the bowel evacuated without difficulty through the umbilical aperture. The post-mortem examination showed a hernia of the ileum at the umbilicus at a point an inch and a half from the cæcum. The umbilical orifice was single, but the probe passed freely into the intestine in both proximal and distal directions. The large intestine was filled with fæces, and terminated in a blind conical extremity about six inches from the ileo-cæcal valve. There was little doubt that the umbilical protrusion consisted of a kind of Lettre's hernia (the result of persistence of the condition which normally obtained during the early period of foetal life), a portion of which had been cut off when the cord had been divided. Its adjacency to the cæcum made it probable that the hernia was determined by a persistent Meckel's diverticulum, which drew the ileum close up to the umbilical aperture, and favored its escape when the ventless gut became filled with accumulated excretion. The placental end of the gut unfortunately was not preserved.

The president referred to a child, which had been under his care at the Children's Hospital, with habitual discharge of fæces from the umbilicus. Nothing was done by way of treatment. Mr. Barber had seen several cases where fæcal fistulæ had lasted a long time and had then spontaneously closed.

Dr. Woodhead looked upon the case rather as one of persistence of the omphalo-mesenteric duct than of true fistula.

Mr. D'Arcy Power asked if any swelling was visible in the cord before division, which might have been a caution against dividing it too closely against the umbilicus. Mr. Anderson, in reply, said that a swelling was noticed in the stump of the cord after the scissors had been used. Perhaps the opening of the gut at the time was the most fortunate thing for the child, as there was no other outlet for the fæces.

Robson: Spinal Caries associated with Hip-Disease. (*British Medical Journal*, June 6, 1891.)

The association of hip-joint disease with caries of the spine is not of frequent occurrence. The author has, however, seen three such cases. An illustration is given of an efficient mechanical support which enables the patient to be up and about on crutches.

Rigge: A Case of Melæna Neonatorum. (*British Medical Journal*, July 11, 1891.)

Forty-eight hours after the birth of the child, which was ap-

parently healthy, blood was found on the diaper, probably amounting to a tablespoonful. Hemorrhage continued until the third day, when the child died. On post-mortem examination all the organs were found natural but perfectly blanched. The whole of the small intestine was congested, and in the lower third numerous small ecchymoses were found.

Nost: Measures for Relieving Laryngeal Stricture following Diphtheria. (*Gaz. Méd.*, June 13, 1891.)

With unruly children it is often impossible to use metallic or hard-rubber sounds to overcome the contraction of the larynx following tracheotomy. To overcome this difficulty the author has had short dilators made of hard rubber, triangular in transverse section, the angles being rounded and terminating above in a conical extremity. The latter resembles a cork, is three centimetres long, vertical, and has a handle thirteen centimetres long joining it at a right angle, allowing one to introduce the cork-like extremity into the larynx with any desired force. The tips or dilators are of different sizes, of course. One should begin with a small one and increase the size as rapidly as possible, passing them daily through the fistula in the larynx from below upward. The dilator may be detached from the handle, and a canula may be adjusted to it, so that it may be kept within the trachea as long as is desirable. During the night, in such cases, a Störck's canula should be used, its opening being covered.

A. F. C.

Transactions of the Twentieth Congress of the German Society of Surgery: Surgery Pertaining to Children.

This Congress was held in Berlin, April 1 to 4, 1891.

KÖNIG: Congenital luxation of the hip.—The treatment of congenital luxations of the hip is an interesting problem in surgery. To improve the condition of the patient one can effect, first, the shortening of the ligamentous apparatus; second, fixation of the head of the femur in the cotyloid cavity; third, impossibility of upward displacement. Resection of the head of the femur is not rational, and indications for such an operation do not always exist. Shortening of the ligamentous apparatus is not practicable, for the results which have thus far been obtained have not been permanent. The same is true with regard to fixation of the head. The choice which remains is the formation of a new cotyloid cavity. To compensate for the loss of substance, König uses a layer of bone included in the skin. A curved incision, two to four

centimetres in length, is made above the trochanter, the muscle and periosteum are cut, and the latter is drawn backward. After cutting the periosteum, the layer of bone mentioned above is cut, the articulation remaining untouched. The periosteum is applied to the capsule of the head of the bone and sutured, the muscles are similarly treated, then prolonged extension is kept up for a long time. What becomes of the layer of bone is unknown. Perhaps the functional irritation of the periosteum prevents any further retraction of it.

WOLFF: *Congenital anomaly of most of the articulations.*—The patient was a girl six years old. The right knee could be luxated at will, but the luxation did not occur spontaneously, neither did it cause any functional trouble. When luxation was produced, the lower limbs remained of the same length, but without the luxation there were several centimetres of shortening on the left side. Under chloroform the tibia could be depressed, but it could not be kept in that position. Incision of the triceps did not do any good, and so the tibia was resected. The results of the operation were satisfactory, the articulation at the knee became mobile, and the lower limbs were of the same length. The same child had a congenital luxation of the hip and one of the radius. Almost every other portion of the body presented an anomaly of some kind.

HEUSNER: *Orthopædic treatment of coxalgia.*—There is as yet no uniform treatment for this treatment. In America, Taylor's apparatus is preferred as a means of treatment. In England, combined extensions with Thomas's apparatus is preferred. In Germany, extension is used for recent cases, and a plaster bandage or resection for old ones. Until 1888 the author favored resection, but he now prefers the bandage as applied by Hessing. The objection to the latter was its expense, and the author has succeeded in making one which is less expensive. It is composed of two parts, a splint for the leg and a band for the pelvis, joined together by a series of hinges. Both are composed of fine steel rods covered with felt. At the upper part of the instrument is an ischiatic ring, which tends to throw the weight of the body upon the foot. The principal part of the apparatus is the metallic band, covered with felt and passing backward upon the pelvis and the crest of the ilium. There are also two metallic rods which pass along the back of the splint and support the sacrum. The apparatus is fixed upon the lower limb by solid bands. At the pelvis it is attached so firmly that it cannot be displaced. The faulty position of the limb is corrected by a

rubber band which is attached in front. An anæsthetic should be used when the apparatus is applied. Contractures will cease in about ten minutes, and the limb will assume a correct position. Thirteen children who have been treated by the author with this apparatus have improved so much that they are now able to walk. In tuberculous cases, injections of iodoform are preferred to those of Koch's fluid.

PETERSEN: *Congenital muscular torticollis*.—The following conclusions are given in regard to the etiology of this condition:

1. Medical literature does not contain sufficient proofs to make one believe that torticollis is due to the rupture of the sterno-mastoid muscle during parturition.

2. Opposed to this hypothesis are also the clinical observations relating to the consequences attending rupture of the muscles, and also the negative experiments which have been made upon animals.

3. Shortening of the sterno-mastoid muscles during intra-uterine life has been demonstrated.

4. Clinical observation and experiments upon animals show that continued approximation of the two ends of a muscle which are in the course of development will result in shortening of the muscle.

5. The intra-uterine development of torticollis, its greater frequency on the right side, its greater frequency in cases of breech presentation, may be perfectly accounted for by anomalies of the amnion.

6. Stromeyer's theory of the traumatic origin of torticollis is not sufficiently demonstrated to make it the only available theory.

7. Torticollis ought not, therefore, to be attributed to want of skill on the part of the accoucheur or the midwife.

KAREWSKI: *Radical cure of hernia*.—It is generally considered that old age and infancy are contraindications for the radical operation for hernia. An operation is not called for in infants in whom the hernia is held back by a bandage. Of 287 hernias in children under five years of age, there were 115 inguinal, 25 scrotal. Of 14 strangulated hernias, 9 were in children under five. Strangulation is usually reducible by taxis. The author has operated nine times for strangulation on children under two and a half years. In 45 recorded cases of operation there were 29, in the consequences were phlegmon, suppuration, etc. In operating upon a child, a small incision must be made, the sac drawn out of the scrotum and entirely freed, after which it is incised. The intestine being reduced, the sac should be twisted, ligated, and fixed.

Occlusion of the internal orifice is unnecessary. An iodoform dressing, drainage, and suture complete the operation. All the author's cases were healed in ten days. The hernial canal is obliterated and a thick cord is formed along its course, which disappears in six or seven weeks.

BRUNS: *Plexiform neuroma*.—Four cases of this condition were published by the author in 1870, and since that time he has seen four more cases, three being upon the head, and one upon the back. The tumors seemed to be composed of thickened and twisted nerve-cords and covered with skin. Such tumors are usually congenital and inherited. Very often they are pigmented, the skin and subcutaneous tissue showing the degeneration of elephantiasis. One usually finds also in connection with such tumors as have been described other congenital malformations of the peripheral nerves, such as multiple neuroma, fibroma molluscum.

GOLDSCHMIDT: *Fistula of the urachus*.—A boy of seven years was brought to the author suffering with a tumor in the region of the umbilicus, which was covered with granulations, and from which urine issued. The fistula was opened and suprapubic section of the bladder was made as a concretion could be felt in it. The granulating tumor retracted, but a sound could be passed along the course of the fistula for four weeks. Ten days after the operation the boy could urinate through his urethra again. The wound closed in seventeen days. The slow development of the fistula, the nature of the fistulous tract, and the absence of inflammatory phenomena in the abdominal walls argued in favor of a fistula of the urachus.

A. F. C.

Broca: *The Treatment of Encephalocele*. (*Rev. Mens. des Mal. de l'Enf.*, June, 1891.)

Not very long ago, if a child with a congenital encephalocele were brought to a surgeon, the latter would be found almost helpless. Pressure or puncture, with or without injections of iodine, were sometimes used for meningoceles, but such practice frequently caused suppuration and did very little, if any, good. Only exceptionally did the tumor disappear or even diminish. One usually regarded such subjects as destined for certain death or for idiocy.

Antisepsis has reversed the therapeutic rules regarding this condition, and operations have been boldly done since 1881, by Skiffasowski and others. Many times the operations have been successful, which shows that one is warranted in attempting them. Puncture and injection are now out of date, and the radical operation of extirpation remains, the operation being

extended as far as the orifice which gives rise to the hernia. The operation consists then in dissecting the pedicle externally and tying it, cutting off the tumor and dropping the stump, suturing the skin over the opening. In some cases small flaps of periosteum may be made, drawn over the opening, and closed before suturing the skin. The operation is a simple one, and one may cut away with boldness anything which is outside the cranial cavity, especially since an encephalocele is not usually the brain itself, but a tumor which is added to the brain. Even if portions of the brain itself are excised, it must be remembered that they would have been of no service if allowed to remain.

A. F. C.

Ranke and Steffen: Intubation of the Larynx. (*Rev. Mens. des Mal. de l'Enf.*, June, 1891.)

Published statistics of all operations of this character which have been done in Germany show the number of cases to be 413, and of this number 364 were for primary diphtheria with laryngeal stenosis. The number of cures was one hundred and thirty-two, or thirty-six and two-tenths per cent. There were also 49 operations for secondary diphtheria, with 9 cures,—that is, eighteen and three-tenths per cent. In the first 843 operations of tracheotomy, which were performed for primary diphtheria, there were 336 cures, or thirty-nine and eight-tenths per cent. In the first 23 cases of tracheotomy for secondary diphtheria, there were 4 cures, or seventeen and three-tenths per cent.

Gay reports 327 tracheotomies from 1880 to 1886, with twenty-nine per cent. of recoveries, and 107 intubations (period not mentioned), with twenty-four per cent. of recoveries. Ranke has thirty-seven and five-tenths per cent. of recoveries from 327 tracheotomies for primary diphtheria, and thirty-two and seven-tenths per cent. of recoveries from 113 intubations.

Schluck-pneumonia and pulmonary gangrene rarely follow intubation, while lobular or croupous pneumonia is more frequent, the proportion being about the same as after tracheotomy.

Necrosis of the larynx and trachea occurs with considerable frequency. The tube should always be removed at the end of ten days, and tracheotomy should be performed if laryngeal stenosis persists. In 13 autopsies after intubation, Wiederhofer found 6 cases of necrosis of the larynx, and in 2 other cases in which intubation was performed a cicatricial process resulted which required the performance of tracheotomy. It is preferable that the tube be kept in position four or five days, as its repeated introduction irritates the larynx. In a general way intubation is more advantageous than tracheotomy, the

duration of treatment being shortened, the operation being neither severe nor bloody, and the danger of cicatricial stenosis being less than after tracheotomy.

Pauli has recently reported 11 cases of intubation for croup, all of which ended fatally.

One great objection to intubation is the difficulty of alimentation which attends it.

A. F. C.

Schwalbe and Baginsky: Tubage in Croup. (*Rev. Mens. des Mal. de l'Enf.*, June, 1891.)

Schwalbe reports ten cases of laryngeal diphtheria in which intubation was performed; nine of them resulted fatally, and in the case in which recovery took place the diagnosis was doubtful. Death occurred in almost all cases from pneumonia or fibrinous bronchitis. The great inconveniences of the operation are the difficulties in alimentation, necrosis resulting from compression, the necessity for the constant attendance of a physician, and the possibility of sudden accidents which may cause death in a few moments. The disadvantages exceed the advantages, and the operation has been abandoned in the author's hospital service.

Baginsky has had two cures in thirteen cases of intubation. In seven of the cases tubage was followed by tracheotomy. The results of intubation have been worse in Berlin than in America, because the diphtheria there has been of a very severe type. Rosenberg thinks that the better results of Americans may be due in part to the superiority of their instruments. Necrosis of the larynx is rarely reported by them. In the first year of life, at least, intubation is preferable to tracheotomy.

A. F. C.

Gampert: Treatment of Chronic Lacunar Amygdalitis by Dissection of the Tonsils. (*Rev. Mens. des Mal. de l'Enf.*, June, 1890.)

This condition is manifested by a sensation of choking during the swallowing of the saliva, also by pricking, tickling at the level of the hyoid bone, at the angle of the jaw, or at the sides of the neck. This sensation disappears when solid food is ingested. There are also paroxysms of dry and fatiguing cough with the expulsion of small white masses with disagreeable odor, the breath is fetid, and there is a bad taste in the posterior pharynx. The tonsils themselves are sometimes hypertrophied, containing deep cavities full of caseous matter, or they may be small and hard with distended crypts.

The author does not advise amputation of the tonsils nor ignipuncture, which destroys the adenoid tissue and imprisons

the secretions which have already formed there. Dissection consists in opening the cavities and breaking up the septa and bands which are there. This is believed to be the best mode of treatment.

A. F. C.

Tubby: Changes in the Normal Length of the Bones following Disease and Injuries of the Epiphyses. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

Two species of shortening of the bones should be distinguished, the partial and the complete. In the first, inflammation, which is usually the cause, produces only temporary trouble in the growth of the bone, and the bone begins to grow again after the cause of the disturbance has disappeared. In such cases an important factor in the shortening is the functional inactivity of the limb during the continuance of the disease. Complete shortening, which is rare, may be due to affections which permanently arrest the growth of the limb, preventing any possible future improvement.

Shortening following traumatic separation of the epiphysis without complications. There is no bone which suffers more considerably with arrest of development after traumatism of the epiphyseal line than the humerus, especially if it is the superior epiphysis which is injured. The difference in length between the two humeri after such an accident may eventually amount to two and a half to four centimetres.

Traumatic separation of the epiphyses with suppuration and necrosis. Even if a traumatism of the epiphysis is followed by suppuration, it is quite rare that complete shortening should be the result. Hutchinson relates a case in which there was a shortening of ten centimetres, and in addition an arrest of development of the clavicle and the scapula of the same side.

Shortening following inflammation occurring in the vicinity of the epiphyseal line and acute necrosis of the extremities of the diaphysis. Several cases of this character are reported by Humphrey. In one case the shortening amounted to seventeen and a half centimetres. It may, therefore, be depended upon that morbid conditions of this character will be followed by deformities of a very pronounced character,—shortening consecutive to operations upon the extremities of the bones.

Humphrey has analyzed eighteen cases of resection of the knee, and found that in eight of them growth was not interfered with, though in one of the cases a portion of bone five centimetres long had been removed. In the ten other cases the growth of the bone was more or less arrested. In six of

the latter cases it had been necessary to injure or resect the entire epiphyseal line.

A. F. C.

Hinkson: Abdominal Section on a Child Ten Hours Old for the Cure of Congenital Umbilical Hernia. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

The child was a female, and when born had a tumor which occupied the greater portion of the anterior abdominal wall. It was elliptical in shape, and extended from the xiphoid cartilage to a point three and a half centimetres above the pubes. It was six centimetres in transverse and twelve in vertical diameter. The tumor contained the large intestine and the liver, both of which could be easily determined by palpation. There were several small cysts in the wall of the tumor. The child was anæsthetized with ether. Under antiseptic precautions the cysts were punctured and a clear fluid withdrawn. An incision was then made at the upper part of the tumor, a bloody liquid flowing out. There were several adhesions over the right lobe of the liver, but they were easily ruptured. The umbilical vein was found on the left side, and the two hypogastric arteries below in the median line. The membranes in connection with the vessels and the superior lobe of the liver were dissected away and the vessels tied. The intestines were kept out of the way with sponges. The wound was sutured with catgut, a drainage-tube being used. Iodoform and sublimate dressing were applied. The suturing was difficult on account of insufficiency of the abdominal walls. When the first dressing was made, the sutures were found to have loosened, and chloroform was given in order to replace them. The wound gradually closed. Ether was tolerated by the infant better than chloroform.

A. F. C.

Moncorvo: Treatment of Infantile Syphilis by Means of Subcutaneous Injections of Mercurial Salts. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

1. The hypodermic method should hereafter be employed in the treatment of syphilis in children.

2. Among the different preparations of mercury which were tried in the cases of forty-seven children who received two hundred and fifty-nine subcutaneous injections, the author preferred the *gray oil* among the insoluble salts, and corrosive sublimate among the soluble salts.

3. Injections of the two preparations mentioned were perfectly well tolerated by the patients, and decided benefits were received.

4. Mercurial injections were always preceded by rigorous

antiseptic precautions, which enabled the author to shorten the intervals between injections. In some cases the intervals were only four days.

5. The results obtained by this method were generally favorable, and as good as those obtained by other methods of treatment.

6. The cutaneous syphilides are very promptly relieved by this mode of treatment; the action upon the adenopathies is more gradual.

7. In a general way this treatment is admirably borne by children with regard to local and general accidents. But it may be also said that children with syphilis bear most modes of mercurial treatment readily; usually without salivation, stomatitis, or intestinal phenomena.

A. F. C.

Rollet: Note upon the Traumatic Juxta-Epiphyseal Detachment of the Upper Extremity of the Humerus. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

Two identical cases of this condition are reported, one occurring in a girl of fifteen and the other in a boy of seventeen. In each case there had been a fall upon the antero-external region of the shoulder, and eight days subsequently there was moderate flattening of the shoulder, also atrophy of the deltoid and muscles of the arm, shortening to the extent of two centimetres, greenish-yellow ecchymosis on the inner side of the arm, backward direction of the axis of the arm, half flexion of the forearm, marked interference in the movements of the arm when the hand was raised to the opposite shoulder, protuberance in the scapulo-humeral region consisting of the upper and anterior portion of the lower fragment. The head of the bone was in place, and followed the movements impressed upon the diaphysis. The diagnosis of juxta-epiphyseal detachment of the upper extremity of the humerus was made, and in both cases the projecting portion was resected, a cure by first intention resulting. The functional results were entirely satisfactory. The following conclusions from these and similar cases are offered:

1. The term juxta-epiphyseal detachment is the only one which is appropriate to the traumatic lesion which is commonly known under the name of epiphyseal detachment. The separation takes place between the cartilages and the diaphysis, and not between the epiphysis and the diaphysis.

2. In young persons during the period of growth, a direct traumatism upon the shoulder is more usually accompanied by juxta-epiphyseal detachment of the upper extremity of the humerus than by a fracture of the surgical neck.

3. The age of the patient, the seat of the lesion near the articulation, the displacement forward and inward of the lower fragment are the principal signs for determining the presence of this accident.

4. In cases in which the displacement is irreducible with notable projection of the lower fragment and with or without perforation of the skin, the projecting portion of bone must be resected. Such intervention which is extra-articular does not mean a dangerous operation, and may result in removal of the deformity and complete restoration of function. A. F. C.

Chipault: *The Surgery of the Nervous System in Children.* (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

This paper has especial reference to spina bifida, and gives rise to the following conclusions:

1. Excision of spina bifida in the new-born infant, even without septic accidents arising from operation, which may easily be avoided, is a very grave procedure. It should be deferred as long as possible, unless rupture is imminent. The chances of success will vary with the general condition of the child and the volume of the spina bifida.

2. The operation should be as simple and performed as rapidly as possible.

3. Osteoplastic operations should be reserved for cases in which the general condition is good,—that is, for vigorous children, not too young.

If any rudiment of a vertebral lamina should remain, it should be mobilized as near the median line as possible or sutured to the opposite side. A satisfactory osteoplastic result has been obtained in a case of this kind by Döllinger, and another by Senenko, the first at the level of the last lumbar vertebræ, the second at the level of the sacrum. If there is no vestige of a posterior arch, and the vertebral opening is at the level of the sacrum, a portion of sacral periosteum may be dissected up from each side and the two portions sutured at the median line. As a last resort a portion of animal periosteum may be transplanted, as was done in an unsuccessful case by Mayo-Robson. A. F. C.

Macdonald: *Congenital Umbilical Hernia; Abdominal Section Six Hours after Birth.* (*Arch. f. Kinderh.*, xiii. 1 and 2.)

A new-born female child had an umbilical hernia as large as an orange, the walls of the sac were thin and transparent, and through them the congested intestines could be seen. By taxis a portion of the hernial mass could be replaced, but the

contents would not remain replaced. Therefore the sac was opened. It contained folds of ileum, ascending colon, and cæcum. The vermiform appendix was as large as a bean. The intestines were easily replaced after separating a few adhesions. There was no bleeding, the opening of the sac was sutured, the sac resected, and antiseptic dressings applied. The author suggests that the following conditions be fulfilled to justify the performance of abdominal section upon a new-born infant.

1. The hernial sac must be in such condition that no necrosis need be anticipated.

2. The hernia must be irreducible.

3. If it is reducible, it must refuse to stay reduced by means of mechanical contrivances.

The operation should be done as quickly as possible. The author's is the nineteenth recorded case of this kind in which an operation has been done. Only two of the operations have been fatal. Of twelve other cases in which the treatment was pressure and bandaging, nine died and three recovered. A. F. C.

Broca: Lannelongue's Method of Treating White Swellings. (*Rev. Mens. des Mal. de l'Enf.*, August, 1891.)

For the past few months Lannelongue has been making important investigations in regard to the local treatment of surgical tuberculosis, and the variety commonly known as white swelling in particular. The method has been published in detail and the patients have been exhibited. The method rests upon the well-known principle that as tuberculosis develops into the sclerotic stage it tends to get well spontaneously; this is well seen in the varieties of tuberculosis, fibrous phthisis, and lupus. Lannelongue has arrived at some remarkable results by the use of a ten-per-cent. solution of chloride of zinc, which has long been used in the treatment of local tuberculosis. He observed that this substance when injected into the tissues has a sclerogenic power of great intensity. With reference to white swelling, the method heretofore has been to act upon the fungosities themselves. Lannelongue has sought to induce sclerosis and ischæmia around the morbid tissues in such a way that their nourishment would be cut off. In the disease in question the zinc solution is injected around the synovial membrane, against the periosteum, and, if possible, under it, the entire joint being surrounded by the injections. The resulting pain is not severe, and if the injections are made deeply there will be no scar. Intra-articular injections are not to be used. In a few hours a brisk reaction will result from the circumarticular injections. The fungous projections will disappear and present an uniform flattened appearance: the

skin will be white, with small red patches, and occasionally dilated veins will be seen, showing interference with the deep circulation. By the following day the entire region will have a firm consistency, with perhaps a few soft or fluctuating spots. These must not be hastily opened as they are probably hæmatomata and not abscesses. The general reaction at this time will amount to little or nothing. Gradually the swelling will diminish, the tissues will resume their normal consistency, and after a few weeks there will be power to use the limb again without ankylosis. This is what takes place in typical cases in which there is only active fungous tissue. The case is not the same when there are necrotic masses, caseous accumulations, or sequestra, with or without abscesses resulting from mixed infection. The abscesses should first be opened and irrigated, and then sclerosis excited in the tissues around them, as in the preceding variety. Then when reaction occurs the bistoury should be used to aid in the elimination of the dead material. Improvement will rapidly take place in this variety also. The children who were shown by Lannelongue, and who had been subjects of this method of operation, gave abundant evidence of its useful results. Whether the results will be permanent remains to be seen, for the vitality of the tubercle bacillus has caused many surprises. A. F. C.

Kummel: Implantation of Bone. (*Rev. Mens. des Mal. de l'Enf.*, July, 1891.)

The author has made use of decalcified bone-plates preserved in an antiseptic solution for bone implantation. Plates thus prepared do very well in cases in which a cavity is to be treated, but in cases in which there has been resection of the long bones, it is preferable to have plates with a central portion which shall be solid and firm. The following cases are reported in which bone has been implanted:

1. Necrosis of the radius in a portion four centimetres long, following a complicated fracture of the lower third in a woman fifty-six years of age. Complete cure at the end of four weeks.

2. Complicated fracture of the tibia with ablation of gangrenous portions in a man sixty years of age. Failure.

3. Tuberculous focus of the calcaneum in a man thirty years of age. The cavity was curetted and filled with six prisms of bone two centimetres each in length. Two of the prisms were eliminated, the others remained. Cure.

4. Spina bifida in a boy three weeks old, implantation of bone at the edges of the bony opening, the edges having first been scraped. The operation succeeded, but the child died subsequently of hydrocephalus.

5. Trephining the mastoid apophysis in a boy six years old. The bone-plates were destroyed by suppuration, also several other cases.

A. F. C.

Hailes, William, Jr.: A Case of Imperforate Anus of Eight Weeks' Standing; Operation and Recovery. (*Albany Med. Annals*, 1891, xii. 66.)

A sound could be passed upwards for three-fourths of an inch, where the rectum ended in a blind pouch. The mother refused anything in the way of an operation. The child nursed from the breast, and for five weeks was quite comfortable; became plump, but required anodynes to make it sleep. The mother secretly gave the child morphine dissolved in water. In estimating the dose, I should say that this newborn infant was taking about a thirty-second of a grain of morphine three times daily. The abdomen became distended, and about the sixth week œdema of the extremities occurred, with pitting upon pressure. There was occasional vomiting of food mixed with bile, and sharp colicky pains. The child was fretful and the abdomen was enormously distended, but still the mother strongly resisted any surgical aid. About the eighth week she consented. It was then a feeble, emaciated child, with enormous distention of the abdomen, with œdema of the extremities and a cyanotic condition of the circulation, with very great venous engorgement over the abdominal parietes. The child had a normal, well-developed anus, which could be explored for about three-fourths of an inch, but no bulging of any kind could be detected from above, and no impulse could be felt, even when the child made violent efforts in crying or struggling.

A trocar three-sixteenths of an inch in diameter was selected, and was passed up into the cul-de-sac and given a slight inclination towards the left side, in order to better reach the rectum coming down on that side. No difficulty was experienced in tapping the distended bowel, and a copious discharge of healthy feces, yellow and rather fluid in consistency, was evacuated through the tube by moving a probe up and down the canula and with occasional tepid injections. The tube was worn more or less constantly for several days, and then the opening was gradually dilated. The child improved steadily. The abdomen recovered from its hyper-distention, with no unfavorable complications ensuing, no dilation from retained ingesta, and no atony of the bowel; assimilation was good. The only troublesome feature of the case was the tendency of the opening in the bowel to contract, and we were obliged to repeat the dilatation every few days. Being

absent from the city on my summer vacation, I found upon my return that the child had not had a movement for three weeks. There was distention of the abdomen and closure of the bowel. Thorough divulsion was done, and since that time there has been no trouble, the opening remaining patent and the child quite comfortable.

It was thought, from the persistent tendency to cicatricial contraction, that it would be necessary to dissect the end of the gut and bring it down, and stitch the mucous membrane to the edge of the sphincter muscle before a satisfactory condition could be obtained, but the child recovered without it. Mr. R. Harrison, of Lumford, England, reports a case successfully operated upon thirty-three days after birth. This one was fifty-six days.

Willard, De Forest: Surgical and Mechanical Treatment of the Deformities following Infantile Spinal Paralysis. (*Am. Journ. Med. Sci.*, ci. 1891, 470.)

Conclusions.—1. Even the severe resultant deformities of infantile paralysis are capable of being benefited by the skilful employment of surgical measures and mechanical appliances. No case with fairly strong upper extremities should remain in helpless cripplehood, since even crutch locomotion is far preferable to a life upon the floor or upon the bed. 2. The deformities following infantile paralysis can be largely prevented by the early use of some form of apparatus. 3. Surgical measures in long-standing cases should usually precede mechanical appliances, since pain and time are thereby saved, and the resulting limbs are in nowise inferior to those obtained by the slower processes of mechanical rectification. 4. The surgical measures to be employed are tenotomy, myotomy, division of the fascia, application of force, and resection. Osteotomy and amputation are sometimes necessary. 5. Mechanical appliances should be used to retain the limb in proper position, but they should not interfere with the circulation of the member. Crooked limbs can often be straightened so as to be made a part of the apparatus, and the muscles of these limbs should be compelled to do their full extent of work in supporting the body. The apparatus must frequently be made to support a large portion of the weight of the body, the helpless, flail-like limbs being accessories. 6. No case should be abandoned without the most careful and repeated attempts at rectification, as even feeble locomotion will in time become greatly improved by exercise in walking, and the health and happiness of the individual will thereby be greatly increased.

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(Continued from page 829.)

IV.—THE TEMPERATURE IN ACUTE PRIMARY PNEUMONIA OF CHILDREN.

BY L. EMMETT HOLT, M.D.,

New York.

I HAVE endeavored to include among the cases studied statistically only those which were observed throughout their course, since it is only by a study of such records that reliable data are obtained.

Nearly all the cases are from the records of the New York Infant Asylum; a much better place than a hospital for such a study, since the children were under observation at the time they were taken ill. In the fatal cases the diagnosis of pneumonia was confirmed by an autopsy in almost every instance.

Cases of secondary pneumonia occurring with measles, diphtheria, scarlet fever, and gastro-intestinal diseases have been excluded, since in these the primary disease modified very essentially the course of the temperature. A considerable

number of cases in which pneumonia developed during pertussis have been included, since this disease played the part of an etiological factor, but did not influence the temperature.

By far the largest number of the cases were under three years, and this fact lends additional interest to this group of cases, since the temperature-curve in the pneumonia of children beyond this age has been well studied by several recent writers, notably by Henry Ashby, in England, C. W. Townsend, in Boston, and Hellström, Jürgensen, and Ziemssen, in Germany. I shall avail myself of some of their figures in order to bring out by contrast the peculiarities in the course of the temperature in children under three years.

I may say, in anticipation of inquiry, that antipyretics have been employed very sparingly in the treatment of these cases, and I do not think that the curves in any of the cases presented have been essentially modified by their use.

Rectal temperatures have, I think, been taken in every instance.

Excluding the classes above specified, there remained for study two hundred and fourteen cases, of which one hundred and sixty-one were cases of broncho-pneumonia and fifty-three cases of lobar pneumonia.

Only one case of broncho-pneumonia was over three years, that one being only one month beyond that age.

Six cases of lobar pneumonia were over three years old. Of the two hundred and seven cases which were three years old or under, one hundred and sixty, or 77.3 per cent., were cases of broncho-pneumonia, and forty-seven, or 22.7 per cent., cases of lobar pneumonia.*

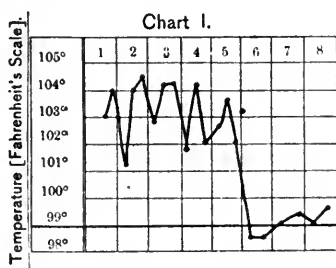
The mortality of the one hundred and sixty-one cases of broncho-pneumonia was one hundred and three, or sixty-four per cent.

* It is interesting to note that the relative frequency of lobar and broncho-pneumonia in children under three years shown in the above figures is almost identical with that found by A. Baginsky (*Monograph on Pneumonia*, Tübingen, 1880). In Baginsky's cases there were one hundred and fifty-one under three years; of these, thirty-six, or 23.8 per cent., were classed as lobar, and one hundred and fifteen, or 76.2 per cent., as broncho- or catarrhal pneumonia.

The mortality of the fifty-three cases of lobar pneumonia was nine, or seventeen per cent., in every case the pneumonia being complicated. The explanation of this high death-rate is to be found in the fact that these were "institution-children."

LOBAR PNEUMONIA.

1. *Course of the temperature.*—The typical temperature-curve is exemplified by Chart I., showing a sudden rise, daily fluctuations, usually within the limit of two degrees, with a critical fall upon the fifth day and no subsequent rise.



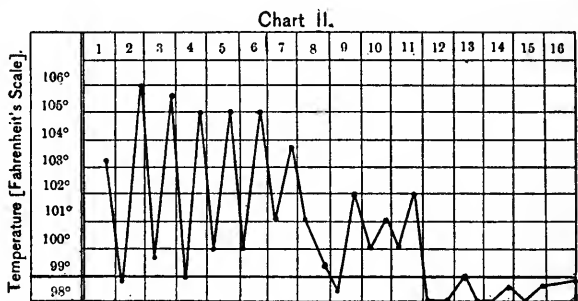
Typical Curve of Lobar Pneumonia.

History.—P. R., male, three years old ; in fair condition, sudden onset. Signs of consolidation—bronchial respiration and voice, and dullness—over left lower lobe behind, not distinct until morning of fifth day. On seventh day lung was resolving.

Such typical temperatures were met with in children as young as thirteen months ; much more common, however, is it to meet with a remittent type of temperature, and, as a rule, the younger the child the more the curve approaches the remittent type. The following case is a remarkable example in which, from the late appearance in the physical signs, the temperature was very misleading. It will be noticed in these cases that, although the fluctuations are wide, the temperature very rarely touches the normal, a point which often helps to separate these cases from those of malarial fever.

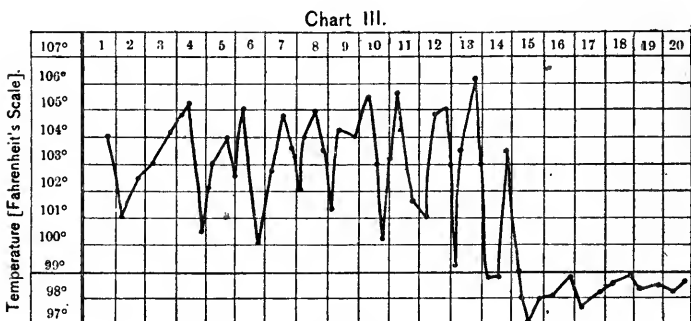
History.—M. M., robust female child, eighteen months old. Sudden onset, no signs in chest till fourth day, then dullness, bronchial respiration and voice at right apex front and back,

no râles ; crisis on eleventh day, two days after crisis the chest was clear.



Lobar Pneumonia with Remittent Temperature.

In the next case, Chart III., which was evidently one starting as a central pneumonia, the remittent temperature is also shown. The fluctuations in this case were wider in the latter part of the illness, the reverse of what was seen in Chart II.

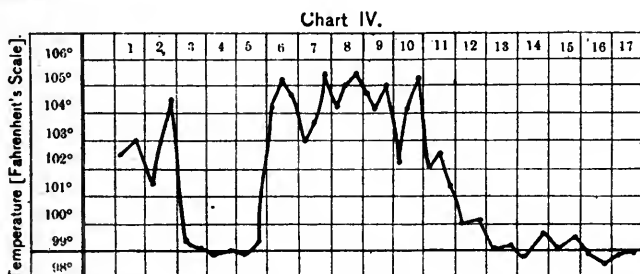


Lobar Pneumonia with Remittent Temperature.

History.—A. D., female, in fair condition ; sudden onset ; repeated examinations of chest made, but no abnormal signs until ninth day. Very rude respiration and slight dulness at right apex, front ; on twelfth day all the signs of consolidation at the same point, no râles ; four days after crisis, lungs were clear.

The following case illustrates one of the more uncommon ways in which a lobar pneumonia may develop. There is seen a sudden onset, with symptoms of an usual attack of pneumonia, which subsided after two days ; then after three days of

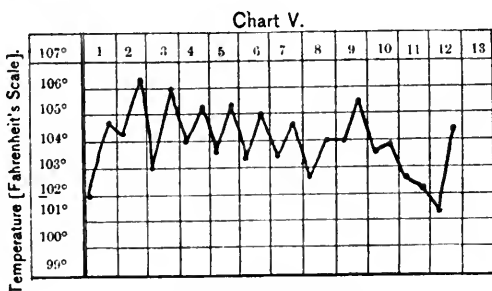
complete absence of fever the disease again started up in the opposite lung. This ran its usual course, the temperature falling by lysis on the fifth and sixth days, and thereafter was normal.



Abortive Pneumonia in Left Lung followed by Typical Lobar Pneumonia in Right Lung.

History.—W. I., male, seventeen months, healthy; sudden onset; on second day disseminated fine râles in both lungs behind, and over left lower very feeble respiration, high pitched, *i.e.*, some bronchitis with congestion (?) of left base. On third, fourth, and fifth days, general symptoms gone and signs nearly disappeared. On sixth day all symptoms of pneumonia and on seventh distinct consolidation of right base, rest of chest clear. Subsequent course typical, resolution rapid and complete.

In the fatal cases of lobar pneumonia the steadily high temperature was the predominating type.



Lobar Pneumonia Fatal.

History.—A. R., female, two years old, robust; sudden onset; signs of consolidation on the third day in right upper

lobe. Autopsy showed gangrene of lung; very extensive gelatinous pleural exudate containing in its meshes five to six ounces of pus. Consolidation of right upper and middle lobes.

TABLE I.

Course of Temperature in Lobar Pneumonia. (Recovery Cases.)

Steadily high temperature.....	12
High, with remittent type.....	22
Medium temperature, with moderate fluctuations.....	9
Total.....	43

2. *Mode of termination of the fever.*—The fever in lobar pneumonia more frequently terminates by crisis than by lysis, as shown by the following table:

TABLE II.

Showing mode of Termination of the Fever in Three Hundred and Forty-two Cases of Lobar Pneumonia under twelve years which ended in recovery.

	Lysis.	Crisis.
Pendlebury Hospital	25	201
Townsend, C. W.	'8	29
Hellström.	5	25
Holt	25	24
Total.....	63	279

The difference in the proportion of my own cases ending by lysis (fifty per cent.) and the general proportion (eighteen per cent.) is very striking. It is to be explained, I think, by the difference in age. The observations of the writers quoted have been made upon older children, and fully ninety per cent. of their cases of pneumonia occurred in children over three years old, while of my own cases all but six were under this age.

Possibly I may have been a little more stringent in the use of the term "crisis," as I have included only those in which the fall to normal was steady and occupied less than twenty-four hours.

The critical day of the cases above referred to was mentioned in three hundred and thirty-nine cases; it was as follows:

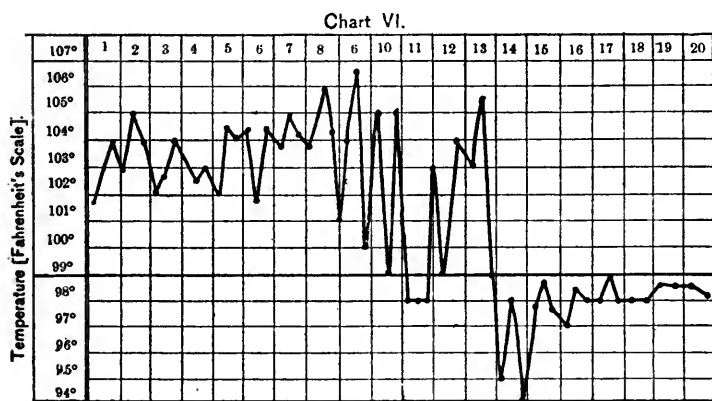
TABLE III.

Showing Critical Day of Three Hundred and Thirty-nine Cases of Lobar Pneumonia in children under twelve.

Crisis on 2d day	2 cases.	Crisis on 10th day.....	17 cases.
" " 3d "	8 "	" " 11th "	7 "
" " 4th "	23 "	" " 12th "	6 "
" " 5th "	47 "	" " 13th "	4 "
" " 6th "	60 "	" " 14th "	6 "
" " 7th "	73 "	" " 18th "	3 "
" " 8th "	50 "	" " 21st "	1 "
" " 9th "	32 "		
			<hr/> 339 "

It will be seen from this table that the most frequent critical day is the seventh; and that in two hundred and thirty of the cases, or about sixty-eight per cent., the fever ended between the fifth and the eighth days.

At the time of the crisis the temperature not infrequently falls below the normal. The following case (see Chart VI.) illustrates this point to an unusual degree; here the tempera-



Lobar Pneumonia; Recovery.

ture fell in the course of fifteen hours 10.5° F., from 105.5° to 95° ; again, later in the same day after a slight reaction, it fell to 94° , with marked general symptoms of prostration, and it was not until two days had passed that the normal temperature was maintained. This is seen to a less degree in a very large number of the cases.

History.—L. C., female, nineteen months old, fairly healthy; sudden onset, symptoms typical but physical signs delayed; consolidation in left mammary region on eighth day; on ninth in right lung middle lobe; on tenth day pseudo-critical drop, followed after twenty-four hours of apyrexia by a further rise, which was accompanied by signs of extension of disease in right lung. Resolution rapid after crisis.

The most frequent causes of post-critical rise are two; first, an extension of disease to a new area in the lung, and, secondly, the development of complications. Those by far most frequent among my cases have been pleurisy with the production of a great amount of fibrin, and empyema.

It will be seen that in several of the cases reported that the crisis, even when it was marked, has been delayed considerably beyond the average period, as shown by Table III. A study of the cases shows very clearly that this is very much more likely to be the case with children under three than among those who are older.

Thus the duration of the fever in forty-two recovery cases (all but six of which were under three years) was over seven days in twenty-five, or sixty per cent. While among three hundred and thirty-nine cases, over three years, the duration of the fever was over seven days in but one hundred and twenty-six, or twenty-seven per cent.

3. *The highest temperature and the mortality.*—The highest recorded temperature in the fifty-three lobar cases was as follows:

TABLE IV.

Highest Temperature.	Recovery Cases.	Fatal Cases.
107.5° F.....	0	2
106.8°	1	0
106.5°	1	0
106.°	4	3
105.5°	8	1
105.°	12	2
104.5°	6	0
104.°	7	0
103.5°	3	1
103.°	2	0
	<hr/> 44	<hr/> 9

It will be seen that of the nineteen cases in which the temperature did not pass 104.5° , but one died,—a mortality of five per cent.

Of thirty-eight cases in which the highest point touched was 105.5° , four died,—a mortality of ten per cent.

Of eleven cases in which the temperature rose to 106° or over, five died,—a mortality of forty-five per cent.

It would appear, then, that a temperature which reaches only to 104.5° , or thereabouts, may be considered normal to the disease, and certainly not one which calls for treatment, *per se*. Further, that above 105° the mortality rises with the increase of each degree of temperature.

Summary.—1. The temperature-curve in lobar pneumonia of children over three years old resembles the adult type, being steadily high and terminating by a crisis, this occurring in nearly eighty per cent. of the cases.

2. The most frequent critical day is the seventh; although it occurs almost as often on the sixth, eighth, and fifth days, the frequency being in the order named.

3. Under three years the proportion of typical cases is very much smaller; crisis occurs in only about one-half the cases, and this is usually at a later day than among older children.

4. Under three years the temperature tends towards the remittent type, wide fluctuations being not uncommon in uncomplicated cases. In a smaller number it is steadily high until the crisis.

5. The mortality is in direct proportion to the height of the temperature when it is above 105° , below this point it seems to bear no constant relation to it.

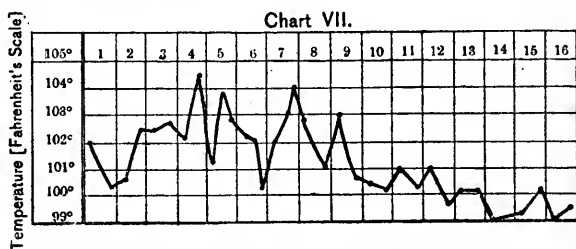
6. The most frequent causes of a post-critical rise or of delayed crisis is extension of the disease in the lungs or complicating pleurisy.

BRONCHO-PNEUMONIA.

1. *The course of the temperature.*—There cannot be said to be any typical course followed by the temperature in broncho-pneumonia in the sense in which that term is used with reference to lobar pneumonia. The great majority of the cases, however, fall quite readily into a few groups, examples of

which are here given. There are not a few, however, which are so irregular that they resist all attempts at classification.

In Chart VII. we have a good example of a rather mild case with a gradual onset, and a termination in recovery. The constitutional symptoms were not grave and followed the course of the temperature.



Typical Broncho-Pneumonia of the Milder Form.

History.—H. D., male, sixteen months old; delicate child; previous bronchitis; onset gradual, signs of consolidation at left base on fifth day, but fine râles heard in both lower lobes behind. Resolution was slow, râles persisting for a long time in both lungs behind.

The next case (Chart VIII.) illustrates a longer course of the disease, with an irregular, remittent temperature, rarely touching the normal line. This variety was seen in quite a large number of cases, and the duration varied usually between fourteen and twenty-eight days.

History.—M. B., female, eighteen months, in fair condition; sudden onset. Early signs were localized, fine râles over left base; on fifth day signs of consolidation here with râles on both sides behind. General symptoms of moderate severity. Signs of consolidation disappeared about a week after cessation of fever, râles persisted nearly two weeks longer.

The next temperature chart (IX.) is that of a relapsing pneumonia or a recurrence before complete resolution. The first attack was a fairly typical one, the acute symptoms lasting about two weeks, and then, while resolution seemed to be progressing satisfactorily, there was a new accession of fever, accompanied by new signs in the chest, and a second attack followed, shorter and milder than the first. Sometimes the interval between the two attacks is two or three weeks, some-

times longer still. There is always a possibility of such an occurrence until the lung has quite recovered, as shown by the

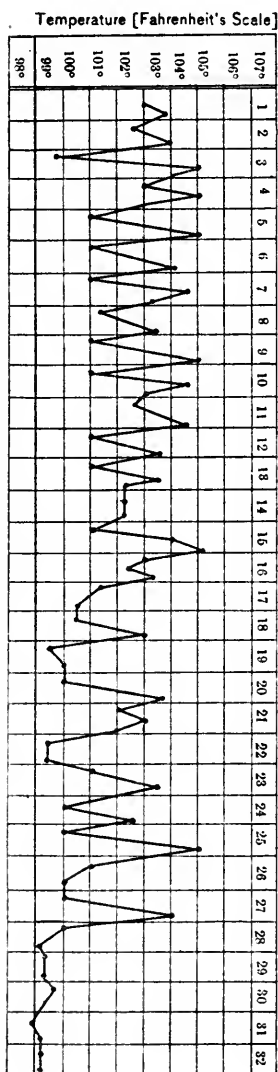


Chart VIII.

Broncho-Pneumonia; Prolonged Course; Recovery.

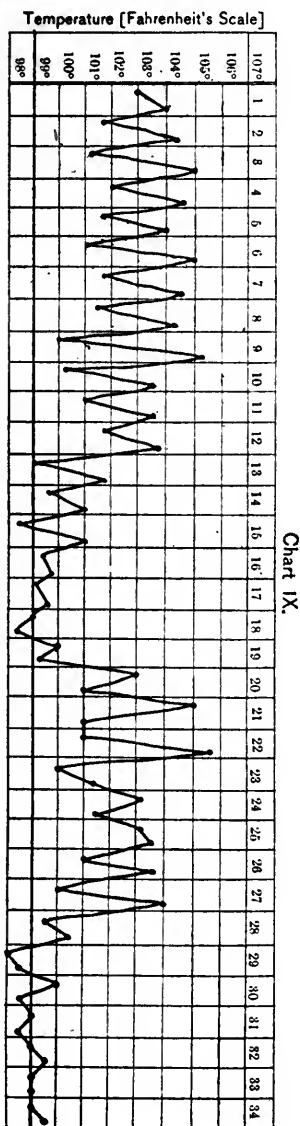


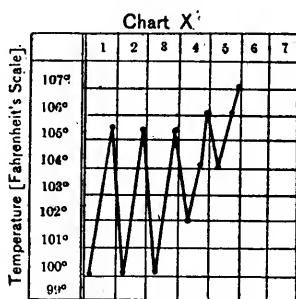
Chart IX.

Relapsing Broncho-Pneumonia; Recovery.

disappearance of all physical signs. In some cases two or three such recurrences have been seen in a single season.

History.—J. B., male, nineteen months ; delicate. Consolidation on sixth day in left lower lobe behind, two days later small area of consolidation in right lower lobe behind ; many râles both sides ; eighteenth day, signs of consolidation had disappeared, but many râles persisted. Accession of fever on nineteenth and twentieth, accompanied by extension in disease as shown by new râles, but no evidences of consolidation during second attack. Slow resolution and convalescence.

Chart X. is a type of a large number of fatal cases in which the temperature, after two or three oscillations, mounts steadily



Broncho-Pneumonia ; Fatal.

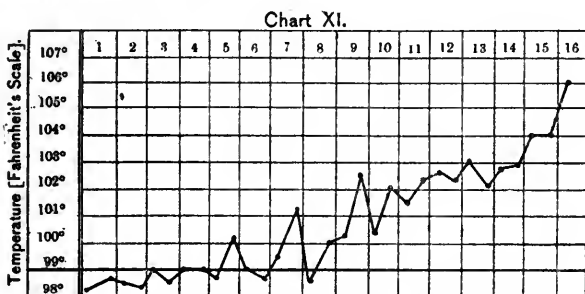
until death takes place. Not infrequently, the duration of these cases is only two or three days, and death often takes place before any signs of consolidation in the lung are found. The inflammatory process is so intense and the prostration so great that they include a large number of the very worst cases met with.

History.—J. B., male, six months old, markedly rachitic ; sudden onset. Signs first day were fine moist râles throughout the chest, marked prostration and cyanosis ; on third day, a small area of consolidation at the upper third of left behind ; increasing prostration, cynosis, and death.

Autopsy.—No pleurisy, consolidation at left apex behind, and posterior two-thirds of left lower lobe ; consolidation of right apex posteriorly, lower lobe intensely congested.

The next case (Chart XI.) shows the gradual development of pneumonia following bronchitis in a patient with pertussis, the temperature gradually rising as the disease extended from

the larger to the smaller bronchi, and finally to the alveoli of the lung. The development in many cases is more rapid, but the same type is preserved.



Fatal Broncho-Pneumonia following Bronchitis.

History.—J. M., six months, male; delicate; pertussis for three weeks. Early signs only of bronchitis of large tubes; on eleventh day signs of consolidation in right upper lobe. Increasing prostration, death cyanosed.

Autopsy.—Large areas of consolidation in right middle and upper lobe, small scattered spots throughout left lung.

The following case is of unusual interest on account of prolonged course of the disease, the duration being over seven weeks of continuous febrile symptoms. Without an autopsy, the diagnosis of tuberculosis might have been urged with some reason. This error in diagnosis is, no doubt, very often made in similar cases. This case progressed, as most such cases do, by a series of exacerbations; a distinct one is shown by the temperature to have occurred on the fifteenth day; another on the twenty-fifth, and still another on the thirty-sixth. The general symptoms were at no time very intense, the temperature most of the time being below 103°, and death taking place from exhaustion due to the gradual extension of the disease (Chart XII.).

History.—S. H., male, two and a half years, healthy; sudden onset; for the first two weeks the only signs were very fine moist râles throughout both lungs front and back. The râles in front in great part gradually cleared up; those behind persisted, but it was not until the thirty-fourth day that posi-

tive signs of consolidation were discovered in the left lower lobe behind; these signs gradually extended, and before death were present over nearly the whole left lung behind and over the right lower lobe. There were also friction sounds over both sides.

Autopsy.—Old and recent pleurisy with general adhesions; left lower lobe completely solid; patches of consolidation in left upper lobe. Right lower lobe about one-half consolidated, with patches elsewhere. Bronchial glands large, but not cheesy. No evidence of tuberculosis either upon gross or microscopical examination.

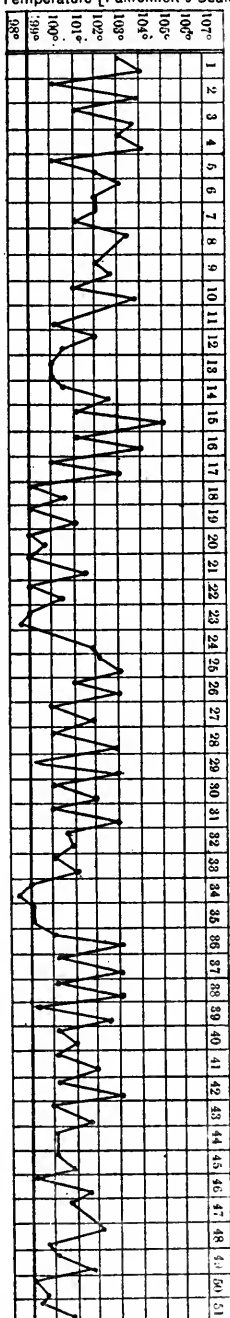
In nearly every one of the charts thus far there is seen in the temperature a more or less distinct morning remission and evening exacerbation. Occasionally, without any cause that can be discovered, we find the temperature higher in the morning than it is in the evening, for several days together. The following case (Chart XIII.) is in this respect a most extraordinary one, since throughout the whole course of the disease, with the exception of a very few days, the temperature was regularly higher in the morning than in the evening. The case in other respects was fairly typical, with its three weeks of fever, never very high; then nearly a week in which the temperature was scarcely above the normal, but with no other signs of improvement; finally, an acute exacerbation and death in two days.

History.—W. P., male, seven months, in fair condition; pertussis for three weeks; gradual onset; on the seventh day consolidation at the left base behind. In a few days the greater part of the left lower lobe was solidified and a small area was found in the right base. General symptoms severe though temperature was low. Repeated attacks of cyanosis and collapse, and death from exhaustion.

Autopsy.—Typical broncho-pneumonia, with consolidation of nearly the whole left lower lobe and scattered areas throughout the right lung. No pleurisy.

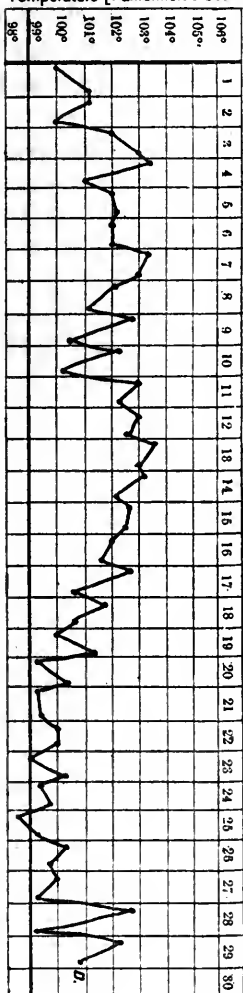
In all the charts thus far a temperature of 104° has been reached in every instance, and in most of the cases this point was touched repeatedly. Broncho-pneumonia, even the acute primary form, may run its course with a temperature very much below this point. Such cases are particularly obscure

Temperature [Fahrenheit's Scale]



Fatal Persistent Broncho-Pneumonia.

Temperature [Fahrenheit's Scale]



Fatal Broncho-Pneumonia, with regular Evening Remissions and Morning Exacerbations.

ones for this reason. Persistent low temperature is seen oftener among infants under eight months, and more frequently in the very delicate than among those of robust constitution. In such cases the temperature may never be above 101° . I have met with one case in which the highest temperature was 99.5° , and the greater part of the time it was subnormal; yet the illness lasted over two weeks and the physical signs were typical. The child was a Cretin and of very feeble vitality.

The following table gives a general idea of the relative frequency with which the variations in the temperature were met with :

TABLE V.

Course of Temperature in Broncho-Pneumonia.

	Fatal Cases.	Recovery Cases.
Steadily high.....	19	...
High and remittent	40	21
Low, early, and high late.....	8	...
Moderately high (ranging from 101° to 104°).....	15	14
Low (generally below 103°)	17	15
Very low (generally below 101°)	4	...
Subnormal	1	...
	<hr/> 104	<hr/> 50

2. *Mode of termination of the fever.*—In broncho-pneumonia this is almost invariably by lysis; a definite crisis is quite a rare event.

3. *Duration of the fever.*—The exact duration of the febrile period in one hundred and fifty-six cases is shown in the following table :

TABLE VI.

Duration of Fever in One Hundred and Fifty-six Cases of Broncho-Pneumonia.

	Recovery Cases.	Fatal Cases.	Total.
2 days .....	...	9	9
3 " .....	...	3	3
4 "	3	6	9
5 " .....	...	9	9
6 "	2	3	5
7 "	6	8	14

	Recovery Cases.	Fatal Cases.	Total.
8-10 days	6	19	25
11-14 "	13	9	22
15-21 "	12	20	32
22-28 "	3	8	11
29-35 "	3	5	8
35-42 " .....	...	6	6
51-60 "	2	1	3
	50	106	156

This table may be condensed so as to bring out more forcibly the relation of the duration of the fever to the mortality, as follows :

TABLE VII.

	Cases.	Deaths.	Mortality.
Whole number	156	106	68 per cent.
Duration of less than 4 days.	12	12	100 "
" 4 to 7 days.....	37	26	70 "
" 8 to 14 "	47	28	60 "
" 15 to 21 "	32	20	62.5 "
" 22 to 35 "	19	13	68.4 "
" over 35 "	9	7	77.7 "

It will be seen that the highest mortality is among the cases of shortest duration, all of those proving fatal that were shorter than four days. In these cases the child is usually overpowered by the violence of the disease, which produces death usually by acute congestion of the parts of the lung not previously involved.

If this early danger is passed the chances of recovery are much improved, since, during the period covered by the next four days, the mortality falls to seventy per cent.

The lowest death-rate of sixty per cent. is seen in the cases terminating in from eight to fourteen days. If the disease continues beyond two weeks the chances of recovery are lessened every day the fever lasts, so that beyond five weeks more than three-fourths die.

4. *The highest temperature and the mortality.*—The following table shows the highest recorded temperature in one hundred and sixty-one cases of broncho-pneumonia.

TABLE VIII.

Highest Temperature in One Hundred and Sixty-One Cases of Broncho-Pneumonia.

Temperature.	Recovery Cases.	Fatal Cases.	Total.
108.° F.....	...	4	4
107.5° .....	...	2	2
107.° .....	...	7	7
106.5° .....	...	7	7
106.°	5	15	20
105.5°	9	5	14
105.°	15	28	43
104.5°	10	7	17
104.°	9	12	21
103.5°	2	2	4
103.°	5	2	7
102.5°	1	3	4
102.°	1	4	5
101.5°	0	1	1
101.°	1	1	2
100.° .....	...	2	2
99.5° .....	...	1	1
	58	103	161

The general mortality of the cases was therefore sixty-four per cent.

Of twenty cases in which the temperature reached 106.5° or over, the mortality was one hundred per cent.

Of seventy-seven cases in which the highest point was 105°, 105.5°, or 106°, the mortality was 62.4 per cent.

Of forty-nine cases in which the highest point was between 103° and 104.5°, the mortality was forty-seven per cent.

Of fifteen cases in which the temperature did not reach 103°, the mortality was eighty per cent.

We learn to be apprehensive not only in cases of very high temperature in broncho-pneumonia, but also in cases with abnormally low temperature. This latter class of cases is a very fatal one, not, however, because the temperature is low, but because of the circumstances under which such low temperatures are to be met with, viz., very early infancy, feeble vitality and great prostration with little reactionary power.

Summary.—1. The predominating type of temperature in acute primary broncho-pneumonia is high and remittent, the

daily fluctuations amounting usually to from three to five degrees, F. The sustained high temperature is uncommon except in the rapidly fatal cases. A low range of temperature only two or three degrees above the normal is not very uncommon, but is more frequent in fatal cases.

2. The termination of the fever is almost invariably by lysis.

3. The lowest mortality is among cases in which the fever lasts from eight to fourteen days; the highest is among those lasting but two or three days, and next to these the protracted cases lasting over four weeks.

4. The day of highest temperature in fatal cases is usually the last day; in recovery cases there is no rule in this respect.

5. The lowest mortality is seen in the cases in which the highest point reached by the temperature was between 103° and 104.5° F. Above 105° the mortality rises with the increase of each degree in the temperature. Abnormally low temperatures are also to be dreaded, since they usually indicate a constitutional condition which makes recovery very doubtful.

V.—THE DIAGNOSIS OF ACUTE BRONCHOPNEUMONIA FROM BRONCHITIS.

BY L. EMMETT HOLT, M.D.,

New York.

THERE is no doubt that these two diseases have been long confounded, not only by practitioners but by medical writers. The more careful microscopical study made in the last ten years of the lesions in the acute pulmonary diseases of young children has placed it beyond dispute that a very large number of cases classed formerly as "acute bronchitis" are really cases of broncho-pneumonia. This applies to nearly the whole group of cases formerly described under the heading of "capillary bronchitis." In infants, it seems almost impossible for an acute inflammation of the fine bronchi to occur without the process extending to the alveoli which surround them unless death takes place at a very early stage in the disease.

The diagnosis of bronchitis of the large tubes from broncho-pneumonia ordinarily presents very few difficulties : the coarse character of the râles, the low temperature, and the absence of the symptoms of serious illness usually make this unmistakable. Again, there are many cases in which it is just as evident that pneumonia exists, both from the severe general symptoms and the physical signs which indicate a solidification of some part of the lung.

It is the class of cases lying between these two which we shall make the special topic of discussion. In regard to them, it may be said that though in the largest number the diagnosis can be made with tolerable certainty, in many it is difficult, and in some it is impossible. It may be urged that, as there is no difference in the management of a case of severe bronchitis and one of broncho-pneumonia, a diagnosis is of no practical importance. This may be admitted from the standpoint of the therapist in the acute attack. It is, however, essential, to a correct understanding of what so often follows such an attack,—relapses, recurrences, or chronic pneumonia,—to know that from the beginning there existed not merely bronchitis but broncho-pneumonia.

The main points of differentiation of acute bronchitis from acute broncho-pneumonia may be grouped under three heads : the difference in temperature, in the severity of the general symptoms, and in the character of the physical signs.

First, as to temperature : Acute bronchitis commonly begins with a rise to 102° or 103° ; usually after twenty-four hours have passed it falls to 100° , and remains between this point and 101.5° for several days, gradually reaching the normal.

If a case begins with this initial temperature supposed, and the fever rises on three or four successive days to 102.5° or 103° , it is almost certain that something more than bronchitis exists. If the fever is due to disease of the lungs, we may be reasonably sure of pneumonia. On the other hand, the existence of a temperature below that supposed does not preclude the possibility of pneumonia. In my series of cases, I have met with several of acute primary pneumonia, even fatal cases, with a temperature scarcely above 101° . Such

must be diagnosticated by the other symptoms,—prostration, cyanosis, etc.,—and the physical signs.

A continuous high temperature for a number of days, then, of pulmonary origin, warrants us in diagnosing pneumonia rather than bronchitis, but a low temperature does not exclude pneumonia. The general symptoms—cough, prostration, restlessness, dyspnoea, and cyanosis—are all, as a rule, less severe in bronchitis than in broncho-pneumonia. But it is the general severity of all, rather than anything particular about each one, that is significant. The more severe they all are the greater the probability of pneumonia.

The physical signs of consolidation, dulness, bronchial breathing, etc., are conclusive evidences of pneumonia, when the symptoms themselves are doubtful. Absence of such signs, however, does not exclude pneumonia, even though they are never obtained throughout the attack. This cannot be too strongly emphasized. Scores of times I have found quite large patches of broncho-pneumonia at autopsy, when on the day previous the most careful examination had failed to disclose any bronchial respiration, bronchial voice, or dulness. The explanation was that the pneumonic areas were so separated by healthy pulmonary tissue that at no point was there enough hepatization to produce any of the ordinary signs by which consolidation is recognized. These are really the only difficult cases, but, unfortunately, they are very frequently met with. Inspection, palpation, and percussion are of little or no value whatever.

The auscultatory signs to be considered are pleuritic friction sounds, the character and localization of the râles, and the nature of the respiratory murmur. Pleuritic sounds may be looked for in broncho-pneumonia whenever we have large areas of consolidation present, but in my experience based upon post-mortem observations, and it has not been small, almost never under other circumstances. In the cases under discussion they are so rarely heard that they may then be dropped from our thought altogether.

Again the character of the râles does not help us much, for the reason that in broncho-pneumonia it is the *bronchitis* and not the *pneumonia* which produces most of the abnormal sounds.

The localization of the râles is of more value. Unilateral bronchitis that is only bronchitis is of very doubtful existence. I do not think I have ever seen it. I refer now to cases in which an acute inflammation remains confined to the tubes of one side; cases are not uncommon in which the signs are unilateral for the first few hours. The signs of localized bronchitis of the finer tubes give us sufficient reason for diagnosing pneumonia in doubtful cases, provided generally that tuberculosis may be excluded. Localized subcrepitant râles over both lower lobes behind are especially to be looked on as denoting pneumonia. Simple bronchitis is commonly a bilateral disease, both sides being symmetrically affected, and the anterior as well as the posterior parts of the chest.

There are cases of disseminated broncho-pneumonia which give rise to generalized subcrepitant râles over the whole chest. These are the cases described by many of the older writers under the term "capillary bronchitis;" all of these are, I believe, cases of broncho-pneumonia. The severity of the general symptoms—dyspnœa, cyanosis, and prostration—are sufficient usually to distinguish them from cases of simple bronchitis.

In conclusion, we make the differential diagnosis between bronchitis and broncho-pneumonia by weighing both the symptoms and the physical signs, and of the two the symptoms, as a rule, are the more valuable. But if we regard every doubtful case as one of pneumonia, we will make very few mistakes, for such the doubtful cases almost invariably turn out at the autopsy to be.

15 EAST FIFTY-FOURTH STREET, NEW YORK.

DISCUSSION.

DR. ROTCH.—We would like to hear from Dr. Jacobi.

DR. JACOBI.—I came in but recently, and will wait till the others have spoken, and then may make a few remarks after I shall have heard the discussion.

DR. KOPLIK.—It was my good fortune during the past two years to make the diagnosis in many cases and to see them at the operating table, both of serous and purulent effu-

sions in children ranging from six months in age to as many years. And what interested me much was the question of tuberculosis and encysted effusions. Whereas it is very common in tuberculosis to find masses tying down the lung and causing thickening, it is not so very rare to find encysted structures in pleurisies of pneumonic nature. I have seen at the operating table a skilful operator open the chest and find very little where he had supposed a large effusion existed. When the finger was introduced, it was found that it entered a cavity formed by adhesions; upon breaking up this cavity a second one was entered, where a large amount of effusion existed, and this effusion examined, turned out to be purely pneumonic, and a good recovery was made; so that the encystment of an exudate is common in a perfectly acute effusion. As to the results of percussion, there is something about the resistance to the percussion finger that is characteristic when a chest is distended with fluid. If anything is atypical, the physical signs of pleuritic effusion in children are, and we can put reliance on none of them. There is in all cases local dorsal flatness and a loss of fremitus when the child cries. In these cases, if a needle is introduced, the diagnosis of effusion is confirmed. We cannot put any reliance in the broncho-vesicular breathing or other classical signs. As to the postponed crises, when crisis does not occur between the eighth and thirteenth day, I suspect other processes. No matter how small the affected area may be, it may be a pleurisy with effusion. Under these circumstances, it is justifiable to put a needle into the chest if there is any difficulty in the breathing.

DR. ROTCH.—I would like to ask Dr. Jacobi if there are not many cases in which the disease lasts forty or fifty days?

DR. JACOBI.—As I arrived late, I preferred to listen to what the other gentlemen had to say, and then to take part in the discussion, but as the President has twice asked me to speak, I will say that as to the indefiniteness of the time when, in many cases, resolution sets in there is no doubt in my mind. In speaking of the earlier stages of croupous and catarrhal pneumonia we are too schematic. We speak as if we always had a well-defined class of pneumonias. There is many a case that does not run its course in this schematic way. It has been my fortune to see cases that were not complicated at all, but quite often do we find croupous pneumonia with pleurisy, lobular pneumonia with pleurisy, croupous pneumonia with interstitial pneumonia, etc. Hybrid forms are more often met with than we usually admit; thus it is best explained why the course of pneumonia is frequently not so regular as we expect.

The question has been asked whether it is my opinion that a shorter or longer period than twelve days occurs before crisis. We have all seen cases that lasted only a few days, crisis occurring in two or three days, but croupous pneumonia has a well-developed course in from seven to ten or fourteen days, and in such the crises will be natural. I will answer affirmatively that many cases will exhibit the so-called regular time. We have heard of so-called intermittent pneumonia. Now, I do not believe malaria has anything to do with it. There are cases of engorgement that run their course in two or two and one-half days and terminate favorable, and may then break out again in a few days, when again we behold a number of days with exudation and positive symptoms of pneumonia. These are the cases that we call intermittent or malarial. When we do have actual malaria, it is an accidental combination. After all, then, I am convinced that we may have pneumonias which run their course in more or less than schedule time. It has been remarked there are many complications, and why not? In genuine croupous pneumonia we have an exudate in the alveoli which coagulates readily. In catarrhal pneumonia we have a change in the larger bronchi, alterations of the epithelia, secretion of mucus, etc. There we have to deal not so much with coagulative as with a catarrhal and epithelial change. In a great many cases we find in pneumonia the complication with pleurisy or with interstitial changes. There can hardly be a case of pneumonia in which the interstitial tissue does not participate; if the latter predominate there is dulness and fever from the beginning, as in an uncomplicated case; but it may last weeks or months, and finally we have lysis and convalescence. This may be perfect, but very often the absorption is not completed, the interstitial process terminates in the formation of new tissue. These are the cases which result in retraction of the pulmonary tissue and dilatation of the bronchial tubes. Those pneumonias which last long are often complicated with interstitial inflammation, and that is why croupous pneumonia lasts so long either actually or apparently, and finally gets well. As far as crisis and lysis are concerned, I do not think that they are always well pronounced. Lysis is not so marked as it might be. It is often slow. There is this difference between croupous pneumonia of adults and of children; there is in the latter lysis as often as there is a crisis. That makes the diagnosis of genuine pneumonia more difficult than in the adult. There are other causes why the diagnosis is difficult. No doubt the gentleman has gone over the ground fully and in every particular. The simple cases ought not to be con-

sidered here. What should occupy this Society is the exceptional cases in which the diagnosis is difficult.

DR. ROTCH.—The symptoms of the early stage of lobar pneumonia would be gladly received from Dr. Jacobi.

DR. JACOBI.—If you would allow me to make a few more random remarks, the Society is aware that it is the President's suggestion and not mine. If I were asked whether I had a positive symptom in diagnosing every lobular or interstitial pneumonia, I should say "No." In a plain, simple case every one will probably diagnose pneumonia on the second day, but probably not often on the first day with certainty. There is dyspnoea, accentuation of expiration after the second, third, or fourth day, fever and occasional vomiting, which, however, we may find in a number of other diseases. It is only after a time that the diagnosis can be made. There are other reasons why the diagnosis is difficult, expectoration is seldom or never seen. It may be bloody, or it may not, and in a well-established case, too, but we do not see the bloody sputum. The child swallows it. Besides, there are cases in which it is impossible to locate the pneumonia. It has taken me sometimes three and four days to locate a pneumonia beginning in the centre. Frequently, when there are complications, there are a number of other symptoms which are confusing. The cerebral symptoms, which give us the impression that we have a meningitis, cannot be properly diagnosed until after a few days have elapsed. In a number of cases in which the diagnosis of meningitis was made, I made a diagnosis sometimes by an accurate examination of the lungs, but now and then just as positively by examining the prominent symptoms. In meningitis we are not likely to find the quickened respiration of pneumonia. The simple fact that the number of respirations was unduly increased made me certain that I had to do with meningitic symptoms developed by pneumonia. I have not seen a case of pneumonia in which the rate of respirations was not increased unless the meningitic symptoms predominated over the respiratory. I have tried more to speak of the difficulty of making a diagnosis than to indicate how to make the positive and accurate diagnosis in any easy case. As we have no sputum, examination of this can be of no use. If we had it, even microscopical examination would not be positive. For Friedlander's coccus is not always found in croupous pneumonia; on the other hand, it may be met with in lobular pneumonia and other diseases, and is found outside the lungs. Fränkel's coccus is found in lobular pneumonia also, so this examination would not benefit us, and I am not in a position to give a microscopic sign con-

cerning any of the forms of pneumonia. Perhaps it is good to speak of one point that may be known to everybody. There is one test that will indicate pneumonia in many a doubtful case; that is the careful examination of the axilla. Always strip the child and percuss gently in both axillæ. Many times a slight dulness will be found here when nowhere else. But percussion must be very gentle; strong and forcible percussion is always out of place. It may be permissible on the chest of an adult, but only gentle percussion will do on the chest of a child. Dr. Northrup spoke of bronchial respiration; in a large number of cases we do not have it, but we have bronchophony. That is what the crying of a baby is good for. A pneumonic child that says nothing deprives us of this symptom, but when he opens his mouth to scream, the difference of the voice on the right and left sides is diagnostic, and has helped me in many cases where the diagnosis could not be made otherwise.

DR. SMITH.—I think the gentlemen must have been surprised at the number of croupous pneumonias under the age of three years seen by Dr. Holt. I think, when he prepares his paper, he should state the grounds upon which he has made the differential diagnosis between croupous and catarrhal pneumonia, the latter being the common form of pneumonia in patients under the age of three years. A high temperature beginning abruptly, continuing three or four days and then abating, does not certainly denote that the pneumonia is croupous. It may be that in such cases there is a condition of the digestive organs that aids in causing this elevation of temperature. It used to be said that in the fatal cases a fibrinous exudation in the alveoli indicated croupous pneumonia, but it is now known that there is sometimes a fibrinous exudate in the alveoli in catarrhal pneumonia.

DR. HOLT.—The symptoms on which the diagnosis was based were the physical signs of circumscribed consolidation, sudden onset, continuous fever, and rapid resolution. There was one question I wished to raise. Has it happened to others, in cases of pneumonia complicated by purulent meningitis, to be surprised at the absence of cerebral symptoms? In two of my cases these were so slight as to be almost overlooked, yet the autopsy showed a most intense meningitis.

DR. FORCHHEIMER.—Meningitis is common in adults, and was present in five out of the hundred cases in which I made autopsies. As a rule, where cortical effusions occur, there are most marked symptoms. No one can tell when he has only cortical symptoms, which are no more than those of congestion

without any exudation. Of the pleurisies, more than one-half have marked meningitis of the convexity.

DR. SMITH.—I referred to the relative frequency of croupous and lobar pneumonia as well as to the symptoms.

DR. FORCHHEIMER.—If Dr. Holt would give us the post-mortem appearances in these cases, we would be better pleased. It is surprising that one person should see so many cases in infants under three years of age. In my more limited experience I have seen few cases of lobar pneumonia in children. There is a pseudo-lobar pneumonia affecting many lobules, with only narrowly separated alveoli, but that is lobular and not lobar.

DR. JACOBI.—There was a time when children were believed to have a pneumonia of their own, and adults one of their own. Adults had a patent right of lobar and children had the same of lobular. I remember to have read lately a statement that almost every case of pneumonia in a child was lobar as in the adult, but I think I can say that only children of eight, nine, or ten years begin to be adults as far as their pneumonias are concerned. Children of three and four have lobular pneumonia. Babies of a few weeks are apt to have lobar pneumonia, and until they are five or six weeks old I have seen more lobar than catarrhal, but after that the vast majority exhibit the lobular form. About one-third of those I have seen at those ages were lobar and two-thirds lobular. I should have liked to listen to more remarks from Dr. Forchheimer, and I think this Society would also like to hear from the President.

DR. ROTCH.—Some years ago I reported a case of lobar pneumonia dying on the second day of life, and the diagnosis was verified by the autopsy. I agree with what Dr. Jacobi has said regarding the relative frequency of pneumonia at different ages, and I believe that the time is coming when we shall be able to explain the reason for its so occurring on histological grounds.

DR. HOLT.—In making up my tables, I first put quite a number of cases in a doubtful class; but after examining them critically again, I put the doubtful cases in the catarrhal class, leaving only those in the lobar class,—only those that were clearly characterized by sudden onset, sharply defined physical signs of consolidation in one lobe or part of a lobe, and rapid resolution. These were, in brief, the symptoms upon which I based the diagnosis, and if they are not conclusive, I would like to know how we are to make the diagnosis of lobar pneumonia. The proportion of lobar cases under three years was twenty-five per cent.

DR. JACOBI.—Those who see many babies soon after birth say that in the first two weeks of life we see more lobar than lobular pneumonia. There is Dr. Northrup, who sees so many at the Foundling Hospital, and Dr. Smith. I would like to hear the experience of those who see many babies in the first few weeks of life.

DR. NORTHRUP.—There is a tradition at the Foundling Asylum that all lobar pneumonias get well. I must indorse Dr. Holt in all he has said except regarding the proportion, as to that I do not know. After three years the pneumonia has a right to be of the adult variety; between two and three a small proportion may be lobar, but it is seldom fatal. I can nearly number on my fingers the fatal cases I have seen.

DR. SMITH.—Many of the catarrhal pneumonias get well also, and their duration varies from two to sixty days, at least that has been my experience.

DR. FORCHHEIMER.—I wish to call attention to the fact that this question was worked out in 1835 by Dr. Gerhardt, whose papers on pneumonia remain to-day as good as any written on the subject. His views quite coincide with those of Dr. Smith.

DR. ADAMS.—I have been reading on the subject, and think there is much in climatic surroundings. In going over the records for seventeen years in the Children's Hospital, lobar pneumonia is the exception. Dr. Acker and I had a discussion as to this point, and, in an experience since 1875, I said I had not seen any croupous pneumonia, and for that reason I thought it singular. I went over the records, and there were only three or four cases recorded of croupous pneumonia, and I do not think there can be any mistake in regard to this point, as the records were the result of examinations by Drs. Busey and W. W. Johnson. I am rather surprised at the number of croupous pneumonias reported. Catarrhal pneumonia is common, and the mortality is not so high, so I think, if this large percentage of lobar pneumonia is found in New York, it must be due to climatic conditions. During the epidemic last year, though I hesitate to refer to this oft-discussed grippé, there were a number of cases in regard to which I could not make up my mind whether it was lobar pneumonia or certain undefined symptoms that occurred, and there were many such in children under five years of age, to which I prefer to give some other name.

DR. JACOBI, on invitation of the President, on the second day, said: Before commencing, I wish to remark that Dr. Huber was prevented from being present by the sudden illness

of a sister. He would have certainly been here but for this misfortune.

I was very sorry for having been absent when the papers were read last evening, and that is why my remarks were not in so good a shape as they should have been before such a society as this; thus I forgot to add one single item that may be of importance in many cases. I tried to confine myself to cases in which the diagnosis is difficult,—in which even an expert would be tempted to make an incorrect diagnosis. I allude to the complication that may arise from the presence of anomalous glands. We know to what extent the mediastinal glands may be affected, and to what extent they are either the cause or the result of sub-acute bronchitis. In a number of cases in which auscultation and percussion is our only guide, the presence of large quantities of mediastinal glands leads to confusion. Not infrequently will they give rise to dulness, either anteriorly or posteriorly, or both. Anteriorly, I have met them mostly on the left side; posteriorly, between the scapulæ near the hilus. Like tubercular infiltration of the lungs, a glandular mass will result in diminished respiratory murmurs by compressing the lungs. Sometimes, when arranged near large bronchi, they will produce brochophony, or bronchial respiration. This effect may be obtained as well near the diseased lung as near the healthy one. Thus an actual difficulty of diagnosing—at least the extent of—a pneumonia may result from the presence of large glandular masses.

HOW TO PREVENT COMPLICATIONS AND SEQUELÆ IN SCARLET FEVER.

BY J. LEWIS SMITH, M.D.,

New York.

THE type of scarlet fever varies greatly in different epidemics and in different years. In the time of Sydenham it was a mild disease, being seldom fatal, but a few years later its type changed, and it became one of the most fatal maladies of early life. The late Dr. Graves, of Dublin, said that at one time the Dublin physicians congratulated themselves on the fact that they were so successful in treating scarlet fever,

losing very few patients, while statistics showed that it had been very fatal in the practice of their predecessors in Ireland. They believed that their better success in treatment was due to a better understanding of the malady, and a better use of therapeutic agents. By and by the type changed, the death-rate largely increased, and the Dublin physicians learned to their sorrow that the good results of the treatment of scarlet fever, which they had attributed to their knowledge and skill, had been due to the mildness of its type. Several years ago a prominent New York physician treated over fifty cases of scarlet fever in an institution without a death, and he made the remark that he thought that he had achieved the mastery over this disease. In a few months the type of the malady changed, and his own child, a bright and promising boy of four years, was one of the victims.

Although the type of scarlet fever is at times very mild and its death-rate low, and considerable improvement has been made in the last few years in the employment of measures designed to prevent as well as to cure it, nevertheless the deaths resulting from it continue large. In New York City the fatal cases from this malady in 1887 were five hundred and eighty-nine, in 1888 were thirteen hundred and sixty-one, in 1889 twelve hundred and forty-two, and in 1890 four hundred and eight. In Brooklyn during the same years the deaths from scarlet fever aggregated twelve hundred and forty-six.

Whenever an epidemic of scarlet fever presents a severe type, deaths occur in not a few instances directly from the intensity or malignancy of the disease. The system is overpowered by the profound blood-poisoning. Malignant scarlet fever begins, as is usual, without premonition, but with a very high temperature, and a rapidity of pulse corresponding with the temperature. Restlessness and delirium ending perhaps in convulsions and coma supervene.

In these cases suddenly overpowered by the intensity of the scarlatinous poison, the eruption has a dusky red color, the circulation especially in the extremities is slow or languid, and the extremities may be cool, while the internal temperature is at or above 105°. In epidemics of a severe type many

patients with these symptoms die within the first week, even within the first three or four days, with the best possible treatment.

But there is no other disease of childhood in which so many fatal complications occur as in scarlet fever, changing at once a favorable to an unfavorable prognosis; and I am induced to prepare this paper in the belief that the physician can by judicious treatment and a correct understanding of the indications prevent some of these complications, or render them milder, and thus be instrumental in saving life.

Intense inflammation of the fauces, followed by gangrene of the faucial surface, cervical adenitis, cellulitis, and perhaps an abscess, inflammation of the Eustachian tube, even with gangrene along its surface, and severe, protracted, painful, and dangerous otitis media are frequent in epidemics of scarlet fever of a severe type, we will endeavor to show that complications which greatly increase the gravity, suffering, and death-rate of scarlatina may be rendered much less frequent by timely and proper preventive treatment, treatment consisting of the early and frequent application to the nasal, post-nasal, and faucial surfaces of non-irritating germicide remedies.

Fränkel and Trendenberg, and Professor Hutinel, of Paris, may be mentioned among those who recommend the early and frequent application of disinfectants to the fauces, as a means of diminishing the severity of scarlet fever, and preventing complications. Professor Hutinel says, "The micro-organism of scarlet fever is not yet isolated, but now we know the germs that are found in the lesions produced by the usual complications of the disease. In nearly all the cases of adenitis, arthritis, nephritis, endocarditis, and pleuritis from scarlet fever, the bacteriological examination has shown a streptococcus that is very much like, if it is not the same, the Rosenbach pyogenic streptococcus." This is, adds Hutinel, constantly seen in the pharynx when the disease begins, and it constantly plays an important part in the genesis of the inflammations seen there (*Archives of Pediatrics*, September, 1890). Professor Hutinel has charge of the pavilion for the treatment of the scarlatinal patients connected with l'Hôpital des Enfants Maladies, and of course has an ample opportunity for observa-

tions. In the *Revue Mensuelle des Maladies de l'Enfance*, July, 1886, Fränkel and Trendenberg relate the results of their microscopic examination of three cases of scarlet fever that died when the eruption was passing off. They found large numbers of streptococci in different organs, and these organisms presented the peculiarities of the streptococci of pus. The number of micro-organisms corresponded with the intensity of the inflammation. These observers found abundant micrococci in the lymphatic glands in the immediate vicinity of the pharynx. They state that their observations teach them that, in order to prevent secondary infection, the physician must vigorously treat the local changes in the pharynx and adjacent parts from the beginning of scarlet fever.

Recent bacteriological investigations in reference to scarlet fever, therefore, have shown that microbes occur abundantly upon the inflamed faucial, nasal, and post-nasal surfaces in this disease, and that the one which closely resembles it, if it be not identical with that which occurs in suppurative processes, is the most abundant. Moreover, in the adenitis, cellulitis, and other internal inflammations which supervene as complications or sequelæ of scarlet fever, organisms occur which are apparently pathogenic, and seem to be identical with those occurring upon the faucial surface. The microbe commonly found is the streptococcus. Therefore, the theory that pathogenic organisms occur abundantly upon the inflamed faucial and nasal surfaces in scarlet fever, and that more or fewer of them enter the system through the capillaries or lymph-channels, and cause the internal inflammations, which complicate this disease, receives support from recent investigations. Even if the advocates of this theory have exaggerated the facts, we cannot, I think, fail to see, in the present status of our knowledge, that early and frequent disinfection of fauces and nares in scarlet fever, whether mild or severe, should be insisted on not only for the purpose of diminishing the inflammation of these parts, but of preventing, so far as possible, the more serious internal complications. The best mode of applying this treatment appears to be spraying or irrigation with an antiseptic, as the peroxide of hydrogen, one part to four of water for the fauces, one part to eight of water for the nares,

used hourly or every half hour, or of corrosive sublimate, two grains to the pint of water, employed every two hours, within non-poisonous limits or with some other non-irritating but efficient disinfectant. A nasal injection should always be warm. I have used as an antiseptic wash for the nostrils, with apparent good result, a combination of boracic acid, sodium borate, and common salt, as in the following formula :

R Acidi boracici, ʒii ;
Sodii borat., ʒii ;
Sodii chloridi, ʒi ;
Aquæ puræ, Oi. Misce.

One teaspoonful to be injected into each nostril hourly.

Cold applications along the sides of the neck, as muslin frequently wrung out of alcohol and ice-water in cases attended by a high temperature, afford some aid in reducing the pharyngitis, and preventing cellulitis and adenitis, but they are much less efficient for this purpose than the antiseptic sprays, which destroy the microbic cause of the complications.

Eclampsia is always a very dangerous complication. It occurs either early in the disease, when the type of the scarlet fever is severe and the temperature dangerously high, or in the declining stage of the disease when its cause is usually uræmia. Eclampsia occurring late in scarlet fever, or after the latter has ceased, and being, therefore, a sequel, is a symptom of nephritis, and we will postpone its consideration until we treat of the renal disease, but eclampsia in the first days of scarlet fever is due to the severity or malignancy of the malady, which early and profoundly affects the nervous system, and is very fatal, so that its prevention is a matter of importance.

Eclampsia thus occurring is certainly at the present time with the new remedies provided by modern chemistry, and abundantly tested by clinical observations, a much more preventible complication than in former times. In the first years of my practice with the use of the old remedies, eclampsia, occurring during the first three or four days of malignant scarlet fever, was much more frequent and fatal than it has been of late years with the appliances of modern therapeutics. Recognizing the fact that the convulsions occur in those whose tem-

perature is dangerously high, we should regard the reduction of the temperature by safe and efficient methods as an important indication for the prevention of eclampsia, as well as of other dangerous nervous manifestations, as delirium or coma.

Most recent writers on scarlet fever recommend as an efficient means of reducing heat the use of cold water externally in one form or another, either by itself or combined with a spirituous lotion or vinegar. Trousseau, commenting on the good results obtained by Currie, of Liverpool, in the beginning of the present century, from cold effusions in scarlet fever, proceeds to speak of the strong popular prejudice against the use of cold in the disease, and continues, "Very well, then, in place of giving your patients cold effusions give them mere lotions of water at 25° C. (77° F.) . . . Let the patient be placed on a folding-bed, and then let the entire body, first the anterior and then the posterior surface, be rapidly wetted with sponges soaked in this water, . . . following the same rules, as after cold effusion,—that is, returning the patient to bed and wrapping him in blankets without being dried." Trousseau speaks of the benefit resulting from such treatment in diminishing the "extreme aridity and stinging heat," the skin becoming cooler and moist, and the cerebral symptoms diminishing. Von Ziemssen recommends the immersion of the patient in water, at the temperature of 90°, and the gradual addition of cool water until the temperature of the bath falls to 77°. In a few minutes the patient is returned to bed and covered with bedclothes, when his temperature will be found reduced two or two and a half degrees. If the patient complain of chilliness, or his pulse be feeble, he should be immediately removed from the bath and whiskey or brandy administered, for, if the extremities remain cool and the capillary circulation sluggish, collapse may occur, or some internal inflammation may arise. Ziemssen, like other physicians of experience, has discarded the use of cold water in adynamic cases, when the pulse is weak, the surface dusky, and the capillary circulation sluggish, but uses instead hot or warm water with alcohol to the extremities.

Professor Henoch, in his treatise on diseases of children, published by Wood, says, "These apparently threatening

cerebral symptoms are undoubtedly due to the continual high fever. . . . If the fever continue high and the apparently malignant symptoms, described above, develop, the head should be covered by an ice-bag, . . . and the child placed in a lukewarm bath not under 25° R. (88.25° F.) I decidedly oppose cooler baths in scarlatina, which presents a tendency to heart-failure; cold may produce an unexpected rapid collapse, more than in any other affection." In his more recent treatise, published by the New Sydenham Society, Henoch reiterates his objections to the use of baths in scarlet fever at a lower temperature than 88° F., and states that on several occasions he has known collapse to occur while patients were in the bath, and in one instance death. Similar remarks on the use of cold baths or bathing for the purpose of reducing the heat in hyperpyretic scarlatina, and relieving the restlessness, jactitation, and delirium, premonitory of eclampsia or coma, might be quoted, did time permit, from other standard writers.

Aided by the experience of such men as Trousseau and Henoch, are we able to formulate a method of employing water as an antipyretic in scarlet fever, and thereby preventing dangerous nervous complications or symptoms, which we can confidently recommend to the profession. In all hyperpyretic cases of scarlatina, whether its form be sthenic or asthenic, accompanied by pronounced nervous symptoms, an ice-bag or its equivalent, a linen or silk handkerchief, wrung out of ice-water every five or ten minutes, should be constantly applied over the head, so long as the temperature remains at or above 103°. The ice-bag should be about one-third full, so that it fits over the head like a cap. If a handkerchief be used, the popular objection to the use of cold may be in a measure overcome, by adding one-fifth part of alcohol to the water, or, as Henoch recommends, adding vinegar to it. At the same time as a potent means of abstracting heat, at least when the temperature is at or over 104°, a similar application should be made around the neck, and especially along its sides. Cold applications over the great vessels of the neck, the jugulars and carotids promptly abstract heat from the blood, while it diminishes the pharyngitis, adenitis, and cellulitis, as we have stated above. In sthenic cases, in which the extremities have a pun-

gent heat, a bright red color, and active circulation, the limbs should be frequently sponged with cool water containing alcohol or vinegar. If the temperature with this treatment be not sufficiently reduced, the hands and forearms may be immersed in the lotion, while the patient is still in bed, or a double thickness of muslin or linen, frequently wrung out of ice-water, may be placed upon the hands and arms. This treatment is grateful to the patient, is not attended by any shock, and continued two or three hours, it usually reduces the temperature two or more degrees.

In asthenic cases, with a dusky color of the skin, a sluggish capillary circulation, coolness of the extremities, or a pungent heat, cool applications, although beneficial when applied to the head and neck, are likely to be injurious if applied to the extremities. On the other hand, in these asthenic cases the frequent application to the extremities of tepid or hot water, with brisk friction, as recommended by Ziemssen and others, accelerates the flow of blood, revives the functional activity in the torpid limbs, and is evidently useful. Allowing the hyperpyretic patient to hold in the mouth and swallow pieces of ice has been a common practice for a long time, and is very agreeable. I would also recommend for hyperpyretic patients as a means of reducing heat, especially when emesis is present, and the quantity of nutriment retained is insufficient, a clyster every third hour of ice-cold peptonized milk, containing one of the sarco-peptones. With proper precautions and discrimination of cases, the use of cold in the ways which I have mentioned for the purpose of reducing hyperpyrexia, is, I think, safe, provided that no renal complication exists.

Quite a large number of antipyretic drugs has been used in scarlet fever, but most of them have been adversely reported on by distinguished clinical observers, either because they are inadequate or are dangerous remedies, and in some cases harmful, and have therefore fallen into disuse, or are not commonly prescribed. Hensch says, in regard to the treatment of really malignant cases, "I have never seen any successful result from the use of large doses of quinine, internally or subcutaneously, and I regard salicylate of sodium, as well as antipyrin and antifebrin, as remedies which are dan-

gerous in such cases, and may favor the occurrence of collapse." I may add to Professor Henoch's condemnation of salicylate of sodium that it sometimes produces albuminuria, and may be a factor in causing nephritis. Professor von Ziemssen, while he recommends hydro-therapeutic treatment of scarlet fever, expresses the opinion that antipyretic drugs are of secondary importance. Reimer and others might be mentioned, whose remarks in regard to these agents are similar to those of Henoch and Ziemssen. Reimer, in the large institution with which he is connected, employed experimentally less known remedies, as kairin and thallin, but reports adversely on their use. *Veratrum viride*, the American hellebore, was for a short time employed in this country, at least in New York, in hyperpyretic scarlet fever; but those who, like myself, prescribed it, subsequently discarded its use, since it is dangerously depressing and is liable to cause collapse. Notwithstanding these adverse opinions, there is, I think, sufficient evidence that two antipyretic drugs are useful in certain cases, so that they can be confidently recommended to the profession for the reduction of the temperature when dangerous nervous symptoms, as restlessness, jactitation, and delirium are present, which are forerunners of eclampsia or coma. These medicines are aconite and phenacetin. Neither of them should probably be given in cases of extreme malignancy, characterized by feeble pulse, dusky color of the skin, and sluggish capillary circulation; but in hyperpyretic cases not markedly adynamic or malignant, they are safe and useful if properly employed.

In his instructive paper on the treatment of scarlatina, read before the American Pediatric Society in 1889, Dr. Fruitnight stated that he had records of sixty-three cases of scarlet fever treated with aconite, with only three deaths. He had employed antipyrin and antifebrin in a considerable number of cases, but abandoned them on account of the symptoms of cardiac depression, and sometimes of collapse, which they caused. Dr. Fruitnight gives a table of cases, showing the reduction of temperature produced by the tincture of aconite root. The average adult dose of this medicine is about three minims every three hours. A child of eight years could take one-third, and one of twelve years one-half, of this dose. I

have also observed a good result from phenacetin administered in half-grain doses to a child of eighteen months, and in one-grain doses to a child of the age of three to five years, every two or three hours, with an alcoholic stimulant. We repeat that in cases attended by marked depression, phenacetin should not be prescribed, or it should be prescribed in small doses, its effects be carefully watched, and an alcoholic stimulant be employed at the same time.

Although, as Professor Henoch has stated, a high temperature in itself produces nervous symptoms, restlessness, jactitation, delirium, somnolence, and that fatal complication eclampsia, and we recognize the importance of employing antipyretics,—modern therapeutics has discovered a drug, not regarded as antipyretic, which exerts a wonderful sedative effect on the nervous system, relieving dangerous symptoms, and which can be safely administered in large and frequent doses. We refer to the bromide, either of potassium or sodium. Prescribed in doses of five grains every hour or second hour for a child of three to five years, it will often, according to my observations, control threatening nervous symptoms and produce quiet rest.

In malignant cases, with frequent, rapid, and weak pulse, ante-mortem heart-clots are liable to occur, constituting a fatal complication. To prevent this, cardiac tonics and stimulants should be employed, as digitalis, musk, camphor, the carbonates, or aromatic spirits of ammonia, and the alcoholic stimulants. These agents produce stronger contraction of the cardiac muscular fibres, and thus diminish the danger of the formation of thrombi. Ammonia, administered in large and frequent doses to young children, is very liable to cause gastritis. To prevent this, it is well to administer it in milk, or after milk has been taken. Three grains of carbonate of ammonia should be given in half a wineglassful of milk every hour or half hour to a child of five years suffering from heart-failure. I am aware that both Henoch and Vidal speak disparagingly of carbonate of ammonia in these cases, regarding it as too weak, but my observations, and the favorable observations of others, induce me to continue its use, when there are evidences of heart-failure.

Musk, in doses of three-fourths of a grain to three grains every two hours, was at one time considerably prescribed as a cardiac stimulant, but it is apparently inferior in its action to camphor. Camphor should be prescribed in doses of one to two grains every two hours. It may be employed hypodermically, as recommended by Henoeh, dissolved in five times its quantity of rectified spirit, and the same quantity of water. Alcohol, whether administered in one of the stronger wines, as sherry, or in whiskey or brandy, is also a most useful and, indeed, indispensable cardiac stimulant.

The so-called scarlatinous rheumatism, whether or not a true rheumatism, is probably of microbic origin, being produced by the scarlatinous germ or by a secondary organism. In itself it involves little danger, but the endocarditis or pericarditis, which sometimes occurs in connection with it, is a serious complication. So far as we understand its nature, it does not seem improbable that it may be prevented or rendered milder, and especially the pericardial or endocardial inflammation, by the germicide treatment, which we have recommended for the prevention of other complications.

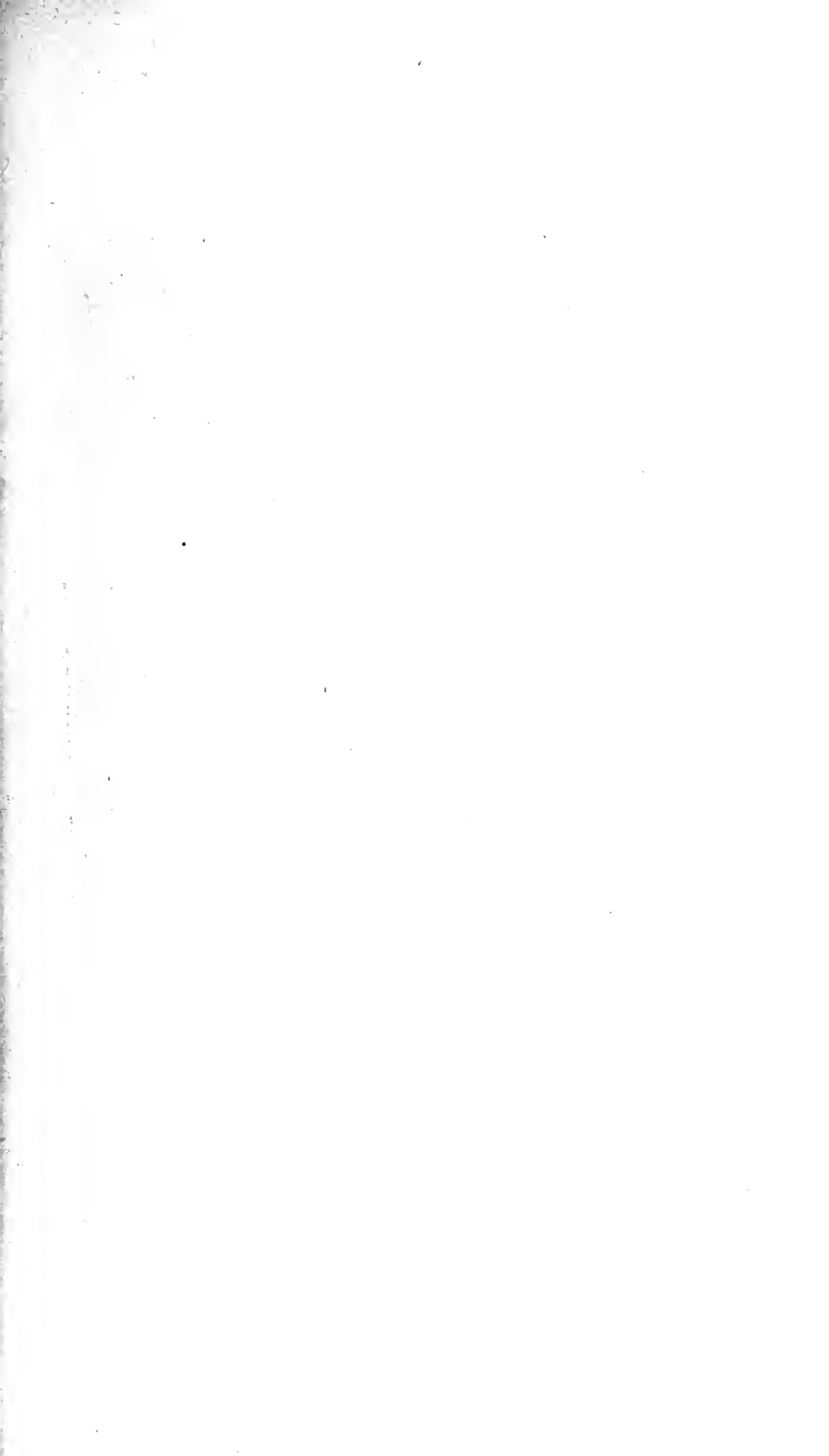
Finally, cannot that common and fatal complication and sequel, glomerulo-nephritis be rendered less common or less severe by appropriate preventive measures? We have stated elsewhere that the fact that this inflammation occurs, in so many instances, in the declining stage of scarlet fever, when there is reason to think that microbic agency is slight, and in the mildest cases that are carelessly treated, incline clinical observers to the belief that the common cause of the nephritis is taking cold, by too early and injudicious exposure to draughts of air, or by out-door life. Hence the cautious and experienced physician directs his patient to remain in a warm room, with the avoidance of currents of air, during the period of desquamation, or until two or three weeks have elapsed after the disappearance of the rash. This is advice in which I fully concur.

But distinguished bacteriologists and pathologists, whose opinions on most subjects are accepted by the profession, believe that the renal disease, though sometimes produced by taking cold, is more commonly caused either by the direct

action of "the specific virus of scarlatina, or by some complicating secondary organism" (Professor Welsh),—in other words, that its cause is microbic. This theory receives support from the investigations of Babes, if the statement made in medical journals be correct, that he has found secondary microbes in kidneys in thirteen or fourteen cases of scarlatinal glomerulonephritis. Hence, in the present state of our knowledge, it is evident that the physician, in endeavoring to employ such measures as will minimize the liability to the renal affection, must recognize the two theories relating to its causation. He will give orders that his patient, during two or three weeks of convalescence, or the period of desquamation, shall remain in a room constantly at a temperature of 70° to 75°, and avoid draughts of air. He will also employ from his first visit the local antiseptic treatment recommended above, for the purpose of destroying, so far as possible, "the specific virus of scarlatina" and "secondary organisms," which may in certain cases be the chief factor in producing the glomerulonephritis.

DISCUSSION.

DR. FRUITNIGHT.—I wish to allude to one point. I have noticed that scarlatinal nephritis occurs most frequently in mild cases of scarlet fever. On account of this mildness, good care is not taken of such cases. They are apt to be neglected or even ignored altogether. Therefore, as a rule in my practice, in every case, be it mild or severe, I always impress upon mothers and nurses three of these cardinal principles of treatment: 1, Warmth; 2, Rest; 3, A milk diet. By following out these principles, sequelæ are usually prevented.





FROM A PHOTOGRAPH OF A CASE OF TUBERCULAR OSTEITIS OF THE HIP.

A CASE OF TUBERCULAR OSTEITIS OF THE HIP ORIGINATING IN COLORADO.*

BY JOHN M. KEATING, M.D.,

Colorado Springs; Vice-President American Pediatric Society, etc.

THE following is the history of a case I have recently seen in consultation with Dr. James A. Hart, of Colorado Springs; it is so interesting that I have taken the liberty of placing it on record. The patient is a remarkably well-developed boy of six years, born at Colorado Springs, an altitude of six thousand feet, with a very bad family record. Surrounded by all the comforts and luxuries that wealth can give, living an open-air life which the wonderful climate affords, he develops a tubercular joint-affection, probably through direct inheritance, and forms a seeming exception to facts most interesting which investigation has brought out.

Dr. Hart's notes read thus:

"B. G., born in November, 1885, at Colorado Springs, where the family had come from Ohio, in 1882, on account of the health of the father. The father died of consumption in 1887, and probably was in an advanced stage of the disease when the child was conceived. The father's parents both died of phthisis, his maternal grandfather died of cancer of the stomach.

"The child as an infant was fairly healthy, when about three years of age he was taken to Europe, and while there developed a general eczema which resisted treatment, and which did not disappear until he reached home. He also while away was troubled with indigestion and diarrhœa.

"In September, 1889, while in Europe, the mother first noticed the child limping and complaining of pain in the ankle; this in a short time disappeared, in a measure, but in the following year he complained of pain above the knee, and it was noticed that he 'favored' the limb in walking, and that he 'stooped in pulling on his stocking.'"

Examining the case in April, 1891, Dr. Hart located the trouble in the right hip-joint. The boy was sent to New York

* Read by Dr. Watson.

to Dr. V. P. Gibney for treatment. As will be seen by the photograph, the boy is at present in an excellent condition of health, his nutrition seems perfect, and the apparatus he wears enables him to play out-doors daily.

It may be added that the boy has two sisters, one seven and the other nine; each one is strumous,—one having enormously enlarged tonsils with enlargement of the lymphatics in the neck.

In reply to a note I wrote to Dr. Gibney, he sent me the following:

“My views of the B. case are simply these. The lesion is an osteitis in the epiphysis and possibly in the diaphysis. There is no assurance that a focus does not exist in the acetabulum. The joint should be protected at all hazards, and the result then ought to be good,—that is, he ought to get well without any shortening and with function restored. In reply to your questions.

“1. There is little danger of stiffness of the knee (from the splint) resulting, such stiffness is contrary to rule. When it does occur, a little use soon breaks it up and a good knee is the result.

“2. I care nothing about stiffness (knee) or muscular atrophy. I am bent on protecting this *hip* against trauma, whether from muscular spasm or from injuries external to the body. It is sometimes desirable to increase muscular atrophy in order that the reflex spasm can be better controlled.

“Believing as I do that the process is nearly always tubercular; convinced, as we all are, of the extreme difficulty of managing tubercular processes; knowing the clinical history and its results of tubercular lesions about the hip, even under what is called good treatment, I feel like omitting nothing that will contribute to the well-being of this particular hip.”

As will be seen, Dr. Gibney's report removes all question as to the case being other than one of tubercular disease; indeed, the history of the case, its invasion, its symptoms, are in themselves sufficient evidence.

I find, upon inquiry, that a large number of the twelve thousand people of Colorado Springs are tubercular; that inter-marriage among the so-called cases of *cured* tuberculosis (and I regret to say many not so pronounced) is by no means infrequent, and yet I can obtain the histories of but five cases of tubercular osteitis of the hip occurring within fifteen years.

Indeed, I believe that there are on record, after most careful search, but eight or ten cases of *acquired phthisis* in persons resident there without previous taint. If the bacillus of Koch be as rapacious as it should be, considering the immense field it occupies, certainly many more cases would be added to our list, and, therefore, I cannot but believe that our little patient is not a victim of a bacillus rampant, but has received his infection direct from his father, which lay dormant in his lymphatic tissues until possibly a slight traumatism produced a focus of irritation in the epiphysis of his right femur, and there determined the process. I have, as an insurance man, always been very much interested in the questions of heredity, and though I am ready to give full credit to the bacillus tuberculosis as a causative factor in the transmission of disease, yet I cannot but feel that there is a something, besides receptivity, which is transmitted from parent to child that when properly nurtured will produce the disease. Some physicians of large experience have thought that tubercular meningitis in children is more frequent in Colorado than elsewhere, that is to say relatively so, but this is a very difficult matter to decide, when we consider the immense concentration of the tubercular population in the State. On the contrary, it certainly seems from the statements made that, whether due to altitude, dryness, sunshine, porous soil, or all combined, *there is a decided immunity from tuberculosis among the child population at Colorado Springs, which is even apparent in those subjected to the most baneful influences of a tubercular ancestry.*

But the matter of cure in such cases as the one herein narrated has always presented a very chaotic appearance to my mind. Why should absolute rest, such as is outlined in Dr. Gibney's letter, render further inroads of the bacillus futile, not, indeed, finally secure its death and the patient's recovery? Until I read the admirable paper by Dr. W. Watson Cheyne, in the *Lancet* for November 15, 1890, I did not fully understand the subject of the expectant treatment.

His views are that "tuberculosis in man is essentially a local disease. In the struggle between the tissues of the human body and the tubercular virus, the opposing forces are pretty well matched, and the victory does not always rest with the

bacillus." That many cases recover without any operative interference whatever,—in other words, that rest—surgical rest—will limit the bacillus to the focus of primary irritation, and it will die without further dissemination. Indeed, in a conversation upon the subject, recently, Dr. Newton Shaffer, of New York, expressed to me the same views, concluding that in all probability the determination of the bacilli to the joint, as to the lung, was possibly brought about by traumatism or irritation, however slight, and that by the expectant treatment adopted at an early stage, especially if the focus be in the epiphysis, as is usually the case, the joint being rendered immovable, the bacillus would be confined to the point of invasion by the bony structures of the shaft, and would be deprived of its power of doing further harm.

Although I am not aware of the percentage of cases of tubercular hip-disease in general, certainly five cases in fifteen years, in a population averaging five thousand individuals annually, of whom possibly *one* in *seven* is tuberculous (C. F. Gardiner), strikes me as remarkably low, and probably warrants the drawing the lesson from this study that immunity from inherited and acquired tuberculosis of other parts as well as the lungs can come from proper care and hygienic surroundings.

A patient under such treatment should then be subjected to climatic influences as are known to be productive of the best results in restraining the evil effects of the bacillus, and these are purity of atmosphere and plenty of sunshine.

A CLINICAL STUDY OF ONE HUNDRED AND FORTY-TWO CASES OF HEART-DISEASE IN CHILDREN.*

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THIS study is based upon one hundred and thirty-five cases of acquired cardiac disease in children under fourteen years of age, and seven cases of congenital malformation. For about one-

* Read by title.

third of these I am indebted to Dr. Holt, who has kindly placed at my disposal the record books of the Northwestern Dispensary.

Of these, fifty-one, or thirty-eight per cent., were boys; eighty-four, or sixty per cent., were girls. Of the congenital cases four were boys and three were girls. Their ages are shown by the following table:

Years	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Males.....		1	2	1	4	6	4	1	8	6	5	6	6	1—	51
Females..		1	3	4	7	9	10	8	9	12	14	3	1	3—	84
Total...		2	5	5	11	15	14	9	17	18	19	9	7	4—	135

Hence less than nine per cent. occurred under five years, while thirty-eight per cent. occurred under eight years. The ratio of males to females for the whole time was one hundred to one hundred and sixty-four; during the first eight years it was one hundred to one hundred and eighty-eight, and for the next seven years one hundred to one hundred and fifty-one. The preponderance of females, therefore, was greatest before eight years. While the number of males cases was virtually the same each year from nine to fourteen, there was a sudden decrease in the number of female cases between eleven and twelve. The greatest number occurred at nine, ten, and eleven years, the total for that period being fifty-four, or forty per cent. As the actual date of onset in most of these cases preceded by several months at least the detection of the murmur, these statistics, as well as those of other observers with which they closely agree, would seem to point to the interval between the fifth and twelfth years as the period of greatest danger as regards heart-disease.

The family history regarding rheumatism was obtained in seventy-four cases with the following results:

Father	27 cases, alone in 17 cases.
Mother.....	21 " " " 11 "
Both father and mother.....	10 "
Brothers or sisters.....	12, parents not rheumatic 4 "
Grandparents.....	25, " " " 11 "
	53 "
No history of rheumatism.....	21 "

In seventy-two per cent., therefore, there was a definite family history of rheumatism, or, excluding grandparents, fifty-seven per cent.

In studying the causes of cardiac disease, the possibility of error is very great. Rheumatism is so uncertain in its manifestations in the young that its presence or absence is only to be ascertained by the utmost care. In obtaining a child's history, it seems almost impossible to always arrive at the exact truth. A mild rheumatic attack may have been unnoticed or its occurrence is soon forgotten. I have been impressed with the considerable number of children who have developed rheumatism in whom no rheumatic history could be obtained at the first visit. There is certainly ground for suspicion that in some of these cases there have been previous attacks. The following statistics have been, in all stages, prepared with great care, and I believe are as accurate as such figures can be made.

TABLE

showing history obtained at first visit in one hundred and seventeen cases.

Acute rheumatism.....	53 cases.
Joint pains or mild subacute rheumatism.....	25 "
Growing pains without other symptoms.....	8 "
Total, rheumatic.....	86 "
Chorea, without growing pains, joint pains, or rheumatism.....	7 cases.
Measles, without rheumatism or scarlet fever.....	9 "
Scarlet fever, without rheumatism or measles.....	5 "
Measles and scarlet fever, without rheumatism....	4 "
No previous illness.....	6 "
Total, non-rheumatic.....	31 "

Diphtheria is so frequently confused with tonsillitis and the angina of scarlatina that it has not been considered. The total number of cases giving a history of measles was twenty-three, of scarlet fever, twenty-eight. The part played by these two diseases in the production of the cardiac disease was in most instances very uncertain.

Among these thirty-one apparent non-rheumatic patients there appeared, while under observation, rheumatism in eight cases, recurrent tonsillitis in two cases, and chorea without evidence of rheumatism in one case. At the first visit, therefore, eighty-six cases (73.5 per cent.) gave a rheumatic history.

Adding to these the cases of rheumatism and tonsillitis developing later, the percentage is raised to 82.1. Erythema, fibrous nodules, and tonsillitis occurred in many cases, but, unless other evidence was also present, they were not classed as rheumatic.

The following intercurrent diseases appeared while these cases were under observation :

Rheumatism.....	23, no previous attack in 8
Tonsillitis.....	9, " " " " 2
Torticollis.....	2, " " " " 2
Purpura.....	1, " " " " 1
Keratitis.....	2, " " " " 2
Chorea.....	11, " " " " 2
Pneumonia.....	3, " " " " 3

A history of chorea was obtained in thirty-nine cases, of which thirty-two were distinctly rheumatic. As an intercurrent disease it appeared for the first time in two cases, of which one was rheumatic. It was seen therefore in forty-one cases, or 30.3 per cent., being associated with rheumatism in thirty-three cases. These numbers, it will be observed, are not for all cases of chorea, but for those only with cardiac lesions. It is a well-known fact that the murmur appearing during chorea sometimes disappears as the choreic movements subside. That occurred in several of these cases. It is in some instances, however, apparent rather than real. In two cases the murmur disappeared as the chorea subsided, but a few weeks later examination showed a distinct mitral regurgitant murmur. In other cases the murmur decreased in intensity, but soon increased and remained as a permanent murmur. Such a condition is probably due to the fresh lighting up of a valvulitis. An attack of rheumatism, perhaps very mild, might readily cause a fresh inflammation on an already sensitive endocardium. While I am strongly inclined to believe that the endocarditis of chorea is in fact rheumatic, in eight cases no history of rheumatism could be obtained, and no evidence of that disease appeared while under observation.

One patient, a girl of three years, gave no history whatever of rheumatism, chorea, measles, scarlet fever, or diphtheria, neither were the parents rheumatic. A murmur developed, or

at least increased very markedly, during the course of a severe pneumonia, and remained as a loud, harsh, mitral regurgitant. In another instance, that of a girl nine years of age, there was a family history of rheumatism, but the patient had never shown any evidence of rheumatism and had not had scarlet fever nor diphtheria. During a mild attack of torticollis a blowing mitral murmur developed. This was unquestionably rheumatism.

The clinical history of heart-disease naturally divides itself into three periods,—that of acute inflammation, of compensation, and of heart-failure. For its intelligent management it is necessary that these distinctions should be kept clearly in mind. If the compensation is perfect, as it often is in children to a surprising degree, there will be no symptoms of heart-disease and nothing to treat. All that can be accomplished in any case not suffering from acute inflammation is to establish compensation. If that is already accomplished, it is the height of impropriety to treat the patient for heart-disease. The error must not be made upon the other extreme, however, that the physician has no duty in the case. Such children should be kept under observation both by parents and physician, lest the condition of compensation be unexpectedly changed to that of heart-failure. Nutrition should be maintained at the highest possible point by diet and properly regulated out-door exercise, and sometimes by the aid of medicine. The child should be especially guarded against exposure to the exanthematous diseases, and above all else should be protected from conditions which may tend to precipitate an attack of rheumatism. Anæmia is a condition full of peril in heart-disease, for, when it is extreme, compensation cannot long be maintained. Yet it is exceedingly common, and is no doubt in many cases a result of the cardiac disease. Record was made upon this point in but seventy-one cases. It was present to a greater or less degree in fifty-nine, in sixteen being noted as extreme.

By far the most common cardiac symptoms were dyspnoea and palpitation. Palpitation was noted in forty-two cases, usually appearing only on exertion. Dyspnoea was but little less common, appearing in thirty-nine cases, in over half being

noticed only on exertion. These symptoms were more marked when the aortic valves were at fault. Pain as an urgent symptom appeared in but eleven cases, and was most commonly associated with a mitral obstructive murmur. Cyanosis and oedema, in cases not suffering from acute endocarditis, were extremely rare. Epistaxis was not uncommon, but could hardly be designated as a symptom of heart-disease. The condition so frequently seen in the adult, marked by dyspnoea so extreme as to prevent sleep, tumultuous palpitation, and extreme cardiac distress, cyanosis, and dropsy, is a rare sight in a child under twelve years.

Pitt has drawn attention to a dilatation of the heart which occurs at about the age of fourteen years, even when no valvular lesion is present. It is characterized by anæmia, loss of energy, palpitation, and dyspnoea. The first sound of the heart is faint, and the pulse is weak, rapid, and irregular. This is explained by the great changes which take place in the heart and vessels at this time, especially in girls. From the seventh to the fourteenth year the heart increases very little in actual volume. There is then a period of sudden growth, when the heart increases from eighty to one hundred per cent., sometimes within the space of a year or two. This is, therefore, a most critical period and one which requires judicious management. I have in a number of instances seen a cardiac patient progress most satisfactorily until this age was reached, when the whole aspect of the case was changed. Compensation became imperfect, the child grew anæmic and gave the strongest evidence of imperfect nutrition. Development was retarded, though there might be growth in height, the child being thin and without strength or vigor. Sometimes he would develop into a fairly healthy youth, but in other cases, going from bad to worse, would finally succumb. In one case, notably, growth and development seemed to wholly stop at fourteen, and for three years there was a slow and steady retrogression until the girl died. Fortunately, many cases, probably the majority, pass safely through this period, often without perceptible inconvenience. Such patients, as a rule, develop into healthy men and women, and may never show symptoms of cardiac disease.

That endocarditis is sometimes an exceedingly obscure disease was proved by a number of these cases. It sometimes occurs without appreciable symptoms. When accompanying a rheumatic attack there is usually an increase in temperature, or slight fever appears if none has previously been present. The child seems more ill, more so, perhaps, than the arthritis would account for. There may be a peculiar restless, anxious expression with a tendency to cyanosis. The heart's action is disturbed with, perhaps, præcordial distress. The pulse becomes very rapid, this being one of the most constant symptoms. Usually a murmur quickly develops, though some observers have noticed that this sign may be delayed. In the great majority of cases it is mitral regurgitant in character. Sometimes there is a marked reduplication of the second sound heard at the apex, not at the base. This, when present, is very strong evidence of endocardial inflammation. I can confirm the statement that this reduplication is likely to be followed by mitral stenosis. I have seen but one death resulting directly from acute endocarditis. In that case the patient, a girl of nine years, five days after all rheumatic symptoms had disappeared, was not only permitted to leave her bed against orders, but to go into the street, where she died suddenly.

In preparing this paper all doubtful cases have been rejected. One well-known author has included in his statistics "cases of thick sounds, thumping action, displaced heaving impulse." Such cases have been rejected, as the pathological conditions present are, to say the least, very problematical. The following murmurs were heard:

Mitral regurgitation in 124 cases, alone in 93 cases.	
Mitral obstruction	" 16 " " " 4 "
Aortic regurgitation	" 9 " " " 0 "
Aortic obstruction	" 26 " " " 3 "
Double mitral and double aortic.....	" 2 "
Mitral regurgitation and double aortic	" 3 "
Mitral regurgitation and aortic obstruction.....	" 18 "
Double aortic (alone).....	" 1 "

In four cases murmurs were heard, but were not differentiated. At the first examination four patients were suffering from

acute primary endocarditis. Of these one died, two developed a mitral regurgitant murmur, and one a double mitral murmur. The statement that a soft blowing murmur is recent, while a loud harsh or musical murmur is old, is usually quite true; but it is a rule subject to many exceptions.

The following peculiarities in physical signs were noted:

1. The apex lies higher and more to the left than in the adult, being outside the nipple-line until four years and rarely inside until eight years.

2. The area of dulness is comparatively large, so that the normal heart may, without caution, be considered as hypertrophied.

3. The cardiac impulse is more clearly visible and can be felt more distinctly than in the adult.

4. Murmurs are heard over a comparatively wide area, especially the mitral regurgitant, which is not infrequently heard over the whole chest.

5. The rate may be readily increased and the rhythm disturbed by slight causes, so that in the examination of a nervous child rapidity and irregularity must be considered of very little importance.

One hundred and twenty-four patients presented clinical evidence of mitral regurgitation. If, as Sansom alleges, in pericarditis a murmur may be heard indistinguishable from the systolic murmur of mitral regurgitation, these were, perhaps, not all due to insufficiency of the mitral valves. The great frequency of the mitral murmur is beyond doubt, by this term being meant a systolic murmur heard with greatest intensity at the apex and conveyed to the left, either into the axilla or to the back. Such a murmur occurred in 91.7 per cent. of these cases.

The murmur of most interest or certainty, the one that has been the subject of most discussion, is the presystolic mitral. In one hundred and one cases it was noted sixteen times, being in relation to the mitral regurgitant as 1 to 7.75. Rheumatism as a factor in its production was less strongly marked than in either of the other murmurs. In four cases no history whatever of rheumatism or chorea was obtained in patient or family. Definite rheumatic history was obtained in

seven cases, consisting simply of growing pains in two. In one case chorea developed later and in one acute rheumatism. Fifty-six per cent., therefore, gave a personal rheumatic history, the percentage for all cases being eighty-two. In the remaining cases the presence of rheumatism was somewhat uncertain. These facts bear out the statement of Sansom, that mitral stenosis is intimately associated with rheumatism, but most frequently with insidious varieties. The same fact has been observed by Chapin.

Symptoms, as in all varieties of valvular disease, were often obscure and at times entirely absent. They were, however, more marked than in simple mitral regurgitation. Pain was more common than with any other lesion, and dyspnoea on exertion was the rule. Palpitation was also common, while bronchitis and cough was more constant than in any other form of valvular disease.

It is universally agreed that the presystolic murmur is rare in infancy. The youngest of these patients was five years old; eleven were over eight years, six being between eight and ten. As far as I have observed, it is slow in its development, never appearing suddenly as does the mitral regurgitant. The character of the abnormal sound is subject to change from time to time, more so than any other murmur. It may become very faint or even imperceptible, but I have not seen it disappear permanently. It is very sure to return, and hopes based on its disappearance are almost certain to be disappointed. There is frequently no perceptible cause for this changeability. Tonic treatment seems to have but little effect in causing permanent disappearance of the murmur.

The mitral obstructive is probably more frequently overlooked than any other murmur, yet it is quite distinct and characteristic. It is, as a rule, harsh and of a rattling, blubbery or wheezing character. It differs decidedly from other murmurs in one particular. Instead of rising to a maximum and then gradually decreasing or shading off into silence, it rises rapidly to the maximum and suddenly ceases as the apex strikes the chest-wall. Its area of diffusion is, also, very limited. As the stethoscope is carried from the apex, a point is quickly reached at which the murmur suddenly and com-

pletely ceases. If a regurgitant murmur is also present and the heart is acting rapidly, the two murmurs may run so closely together as to be with difficulty separated. In that case the first portion, or obstructive murmur, suddenly ceases at a given point, while the regurgitant remains unchanged. If the second sound is reduplicated at the apex, the certainty of mitral stenosis is increased. A thrill is by no means as common as in the adult. It is sometimes absent in well-marked cases. It was noted in but seven cases, but may have occurred in other instances.

One case, that of a girl of eight years, is of interest, in showing the order of development of the murmurs. When first seen there was a mitral regurgitant murmur, dating, no doubt, from an attack of diphtheria, which had been followed by renal symptoms. Two years later subacute rheumatism developed, and during the next two years was followed by several well-marked attacks with nodules. Four years after the first examination a mitral obstructive murmur was heard, and a few months later a thrill appeared, followed the next year by an aortic obstructive murmur, and this in turn by an aortic regurgitation.

Another patient, a boy six years old, was brought to the Polyclinic in April last. There was no history whatever of rheumatism or chorea either in patient or family. There were slight joint pains and pneumonic consolidation was detected at the left base. The heart-action was tumultuous, but no abnormal sound could be positively detected. Four days later there was unquestioned endocarditis and distinct pericardial friction sounds. The acute symptoms disappeared during the next two weeks, a mitral regurgitant murmur being left. He was not seen again until August, when a mitral regurgitant murmur was heard, and also a loud blubbery mitral obstruction, accompanied by a slight thrill. The boy was in excellent physical condition, and was supposed by the parents to be in perfect health.

The aortic murmurs were much more definitely associated with rheumatic histories than were the mitral. In the twenty-six aortic cases the family history was taken in seventeen, in twelve of which it was definitely rheumatic. In fourteen

there was a clear history of articular rheumatism, and in four of indefinite and growing pains. In but three could a positive negative history be obtained. Nine cases were choreic. Nearly seven cases in eight gave a personal history of chorea or rheumatism. Two of the non-rheumatic cases had had scarlet fever about one year before, from which it is quite possible the cardiac lesions resulted.

While symptoms were in many cases absent or very obscure, they were as a rule somewhat more distinctive than in mitral regurgitation. Anæmia was almost constantly present; dyspnoea was noted fifteen times and palpitation fourteen. Both symptoms were more continuous, depending less upon exertion than with the mitral lesions. Pain was prominent in but three cases not associated with mitral stenosis. Cases of double aortic murmur were invariably marked by palpitation and dyspnoea, at least on exertion. Dyspnoea was by far the most constant and definite symptom.

In but few instances did the murmur wholly disappear, though a change in character was not uncommon, a loud, harsh murmur becoming soft and blowing, and at times difficult of detection. The two murmurs that disappeared were slow in doing so, two years being required in one case and three and a half in the other. In one patient, a girl of nine years, who gave a history of chorea and rheumatism, there was a mitral regurgitant and loud obstructive murmur. During a period of four years she had several attacks of subacute rheumatism, but at the same time the aortic obstructive murmur gradually disappeared, while an aortic regurgitant developed. For over two years there has been no rheumatism. The murmurs remain, but are unaccompanied by symptoms. The girl has grown large and strong, and is apparently well.

Study of these cases tends to show that if intercurrent attacks of rheumatism can be prevented, the progress of aortic disease is not especially worse than that of mitral. That aortic disease is, however, a matter of great seriousness cannot be doubted. It is the result of an extensive endocarditis, and is in a large majority of cases closely associated with rheumatism. Children suffering from this form of valvular disease

are especially subject to recurrent attacks of rheumatism with accompanying endocarditis. Taking this into consideration, the prognosis of aortic disease is far worse than that of mitral disease. While it is possible that the murmur may disappear as the child develops, the probability of such a fortunate outcome is very small.

Seven cases gave evidence of congenital disease or malformation. Space forbids extended discussion of this subject, and the pathological conditions are so varied that classification of symptoms or physical signs is impossible. I simply subjoin, therefore, a brief history of each case. A point to me of especial interest has been with reference to bronchitis and its possible action, by obstructing pulmonary circulation, in causing continued patency of the foetal openings.

CASE I.—A. P., four months old. Gave no history of cyanosis or other cardiac symptoms. Has always been weak and puny and subject to bronchitis. Was suffering from pneumonia, from which he died the following day. At the autopsy nothing abnormal was found at either valvular orifice. The foramen ovale was open, being the size of a lead-pencil, with smooth, rounded margins. It was, however, valvular in character, and probably allowed very little regurgitation. The ductus arteriosus was also open, the aorta being slightly contracted between it and the heart.

CASE II.—J. A., two years old; feeble and poorly nourished; has never walked; had always been subject to bronchitis, and had been cyanotic from birth. A very loud systolic murmur was heard, being most intense at the left of the sternum at the juncture of the fourth rib, and transmitted towards the left shoulder. This case was seen by competent diagnosticians, who agreed in the diagnosis of pulmonary stenosis with open foramen ovale.

CASE III.—S. O., two years old. When first brought for treatment was suffering from broncho-pneumonia, from which she recovered. History of cyanosis doubtful. A harsh systolic murmur was heard over the whole left side of the chest anteriorly. The point of the maximum intensity was well above the apex, to the left of the sternum, the bruit being transmitted towards the left shoulder. The certainty as to

its congenital nature was, perhaps, less in this than in any of the other cases.

CASE IV.—T. K., three months old. Cyanosis marked while crying or excited, little or none when quiet. Systolic murmur heard loudest at second or third space at left of sternum, audible over whole chest, but more distinct towards the left shoulder than at the apex. The child died at the age of four months. The heart was found at the autopsy to be normal in size. Immediately beneath the aortic valve and above the muscular substance of the ventricular septum was an opening one-fifth of an inch in diameter, which communicated with the right ventricle, the aortic valves and coronary arteries being normal. This opening entered the ventricle at a considerable distance from the pulmonary orifice, at which there was marked stenosis, the right ventricle being greatly hypertrophied. The pulmonary artery was of normal size, and the valve was somewhat thickened and adherent, probably sufficient to allow regurgitation during life. The foramen ovale and ductus arteriosus were closed. The inter-ventricular opening was chiefly peculiar from its position, which was unusually high.

CASE V.—J. B., eleven months old. No history of illness except bronchitis, to which she was very subject. Cyanosis had not been observed. There was a blowing, systolic murmur, most distinct at the third space left of the sternum, conveyed upward and outward, but audible over a large area. During two and a half years the child has grown naturally, and has had no illness, except measles and an occasional bronchitis, which is never severe, but very rebellious to treatment. The murmur remains unchanged.

CASE VI.—C. B., three years old. No history of rheumatism or chorea in patient or family. Patient had never been strong, but had had no illness except bronchitis. No cyanosis was noticed till child was several months old, when it gradually appeared, and had markedly increased during the past year. When quiet it was scarcely perceptible, but upon exertion it became extreme. A loud, harsh murmur was heard just before and with the first sound, the point of maximum intensity being above the apex near the sternum. It was con-

vayed upward and to the left, but was heard distinctly at the apex. After two years the cyanosis is not quite as marked, but the murmur is unchanged. The boy is growing, but shows marked clubbing of the finger-ends.

CASE VII.—A. B., ten months old. Child was puny; has had bronchitis much of the time, but not severely. Cyanosis upon crying was marked, and had been noticed since birth. A loud, blowing murmur, systolic and probably diastolic, was heard over the whole chest; of maximum intensity at the left of the sternum above the apex.

PERITYPHLITIS IN THE YOUNG.

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THOUGH this disease has been much written about and much discussed within the last few years, it continues to be a subject of absorbing interest, both because of the frequency of its occurrence in the young, and because of the difficulties involved in the solution of technical questions relating to its management.

Every physician has at some time been confronted with the problem, whether he should rely solely upon medical treatment in these cases or whether he should assume the responsibility of operative interference. If the case die without operation, he is prone to reproach himself with the reflection, "the patient might have been rescued if he had been operated upon." If, on the other hand, the patient recover spontaneously, elated the physician will exclaim, "I am glad that an operation was not performed."

These thoughts portray vividly the uncertainty which may surround our conclusions in these cases, and will warrant a discussion both profitable and instructive. According to its anatomical seat or pathological state the disease may be designated typhlitis, perityphlitis, paratyphlitis, and appendicitis. But inasmuch as it is not always possible to readily differen-

tiate these varieties, the generic term perityphlitis is to be commended for ordinary description.

Perityphlitis occurs more frequently than is generally supposed, for many cases are so mild in character that they do not require treatment. It has been estimated that one-third of all necropsies reveal lesions which indicate that the subject had been the victim of an appendicitis at some remote period, although no history of its occurrence had been elicited during life. It is met with twice as often in males as in females. Among children perityphlitis is a common affection. In boys the disease is apt to be less severe than in men, and with a tendency to improvement in all the symptoms. Dr. R. H. Fitz, of Boston, in a careful analysis of four hundred and sixty-four cases of the various forms of iliac regional disease, found that fifty per cent. of them were under twenty years of age.*

In very young children the disease is rare. The youngest case on record occurred in an infant seven weeks old, which was reported by Dr. Demne. The duration of the attack is not constant. In children it is usually shorter than in adult life. In its clinical course the disease may be either resolving or suppurative. If the attack is to end in resolution, it will in the majority of instances continue from fourteen to twenty-one days. If, on the other hand, suppuration shall have supervened, an early operation naturally will shorten the attack. Furthermore, in such cases which seem to have resolved and to have apparently recovered, adhesions resulting from former inflammatory attacks, or encapsulated abscess, or faecal matter temporarily confined in a segment of the bowel by adhesive inflammation, may be among the causes of a revival of the disease in consequence of some accident or some indiscretion of the patient. These recurrent attacks may prolong the duration of the illness beyond the limit of time ordinarily reached in the resolution of a primary attack. The late Willard Parker observed that while the formation of abscess was of more frequent occurrence in the adult, perforation and gangrene of the appendix were more commonly

* Amer. Jour. Med. Sciences, 1887.

encountered in children. Sometimes when pus has formed it will make its way out through the abdominal walls. Dr. Bull, of New York City, has reported sixty-seven cases of abscess, of which twenty-eight burst through the abdominal parietes, and only eight into the peritoneal cavity.

The anatomical structure of the cæcum and appendix, as it obtains in children, readily predisposes these organs to inflammation. Congenital or acquired irregularities in position and attachment of the appendix may favor attacks of inflammation. The narrow lumen of the colon and the tortuous character of the appendix render the latter especially liable to become the seat of inflammatory action. For while in the adult the ratio of the diameter of the colon to that of the appendicular process is as eight to one, in the new-born infant this ratio is only as four to one. The entrance of foreign substances into the vermiform process is also encouraged by this anatomical relationship. The greater irritability and proneness to inflammation of the intestinal tract in the young is another factor to be considered in the causation of the disease and of its frequency in early life. In children, as in adults, the same general causes, exclusive of abdominal tumors, will produce an attack of the disease. Among these may be enumerated external violence, as falls, blows, efforts at lifting heavy weights, and so on. These usually act as exciting causes, for some internal condition is nearly always the predisposing cause. Most frequently, however, the attack depends upon internal causes alone. Among these are constipation and the presence of indigestible food or other foreign bodies. The irritation arising from the presence of lumbricoid worms has sufficed to bring on an attack. Reflex causes, like cold, have been assigned as the origins of an attack. And by some physicians the strumous diathesis even has been assumed to act as a predisposing cause.

Pathologically, the lesions in children are similar to those in the adult. The inflammation may have its starting-point in either the cæcum or the appendix, or in both. Thence it may extend to the peritoneum, or to the peritoneum and cellular tissue of the iliac fossa, constituting a complicated process of disease to which we have applied the generic term perityph-

litis. In the majority of these cases it is more than probable that the peritonitis is secondary. Most cases take their origin in the vermiform appendix. Post-mortem examinations have disclosed the fact that the walls of the cæcum and the post-cæcal cellular tissue are in but few instances the seat of decided inflammation, and that then it is a result of the presence of impacted fæces or foreign bodies. Osler,* however, has observed perforation from round ulcer as well as other lesions in the cæcum. Abscess may form in the right iliac fossa, in the right lumbar region behind the cæcum, or in the pelvis. At times, when the acute symptoms have subsided, hard faecal matter, intestinal concretions, gall stones, or other foreign substances, may be discharged from the body. In such cases it must be assumed that typhlitis or perityphlitis has occurred, the hypothesis that ulceration and perforation of the appendix have occurred being untenable. Although pathological confirmation is lacking to this assumption it is generally adopted, because no more plausible explanation has been offered.

It does not admit of doubt that the most common cause of perforation and ulceration is the presence of an enterolith or other foreign matter. In a number of cases, however, in which no foreign body could be discovered, it was evident that a simple catarrhal inflammation had advanced to ulceration and perforation. What the lesion may have been in cases which end in resolution and restoration to health is a matter for conjecture. In quite a number of such cases it might be fair to assume that the cæcum has been the seat of a simple inflammation, the resulting effusion forming the tumor which easily submits to the process of resolution. Numerous cases of this description have been reported. In fatal cases of appendicitis pus is undoubtedly present, with ulceration and perforation. Great importance attaches to the location of the deposits of pus in these cases. The collections of pus are frequently intraperitoneal, imprisoned in circumscribed sacs of peritoneal tissue produced by adhesion of adjacent loops of the intestines. Osler has said that a circumscribed peritonitis,

* Medical News, 1887.

moderate in degree, lasting for weeks or months, may follow a perforation of the appendix. This localized peritonitis of mild intensity may suddenly be converted into an acute peritonitis by the bursting of the small restricted abscess into the general peritoneal cavity.

In children a prodromal stage, lasting weeks or even months, often exists before a conclusive diagnosis can be established. Though diarrhoea is sometimes present, generally the patient is troubled with constipation before and during the illness. Vomiting is often a prominent symptom. Recurrent pains and localized tenderness over the region of the cæcum are the most constant and reliable symptoms. Yet pain is not uniformly present in the right iliac region, for it has been complained of in the epigastrium and even in the left iliac fossa. Pain is also sometimes felt along the course of the transverse colon. Walking and standing are interfered with. The right side is apt to be favored by the patient. The right leg tingles and is painful. At times that extremity is bereft even of its physical powers. The dorsal decubitus, with flexion of the right thigh, is the usual posture of the sufferer. The general febrile symptoms of inflammation are of course present. If within a few days the patient's temperature should become normal and the local symptoms improve, the attack will probably end in resolution. If, on the contrary, the fever should continue, accompanied by an aggravation of the local symptoms, emaciation, feebleness, rigors, colliquative sweats, and profound anæmia, suppuration is undoubtedly proceeding. A point to be recollected, however, is that occasionally the formation of pus may take place with the absence of high temperature, and minus other *appreciable* clinical signs of the suppurative process.

Parotitis has been met with as a complication of perityphlitis. Local thrombosis and phlebitis, also phlebitis of the portal vein and its radicles with embolic hepatitis, have been encountered as complications of the disease. In several cases of perforated appendix pain in the genitals has been noted.

A history of prolonged constipation, with the development of febrile movement, protracted pain, and a tumor located in

the lumbar region, which has a boggy feeling when pressed upon, denote the presence of a faecal typhlitis. Acute intestinal obstruction is characterized by constipation, the early appearance of meteorism, the retention of flatus, and the late appearance of fever. Peripheral pain along the right lower extremity is apt to be misleading, for this disease sometimes stimulates coxitis. Dr. V. P. Gibney has observed eight or ten cases of perityphlitis in children who exhibited the characteristic deformity of hip-joint disease. Typhoid fever is to be differentiated by its clinical history and the absence of rigidity and tumefaction in the ileo-cæcal region. Intussusception should be discriminated from this disease by its bloody discharges and pronounced tenesmus. Impaction of faeces can be diagnosticated by a history of previous constipation, and by the presence along the course of the colon of an oblong swelling, with but slight tenderness and of a doughy consistency. In female children an oöphoritis as a sequela to gonorrhœal infection may be confounded with a perityphlitis. A physical examination of the girl and the presence of the usual vaginal discharge will enable the physician to make the correct diagnosis in such cases. The disease is also to be differentiated from a simple, deep-seated, mural abscess occurring in the right iliac region, an example of which came under my observation within the last year. In these cases the physical signs of the various affections must be kept clearly in mind by the physician, for upon a proper construction of their significance must depend his diagnosis. Therefore abdominal pain more or less intense, tenderness on pressure about two inches from the anterior superior spinous process of the crest of the right ilium in a line between it and the navel, fever of a higher or lower degree, rigidity of the abdominal muscles, tympanites of varying amount, a tumor of greater or less size, and pain when the right thigh is extended, present to us a graphic clinical picture indicative of the presence of perityphlitis.

Although this combination of symptoms will render the diagnosis of the disease quite easy, the solution of the questions as to what stage the disease may have reached, as to whether pus has formed or not, as to whether perforation has happened or not, or even as to whether a general peritonitis

may be present or not, will always be surrounded with difficulty. Suppurative perityphlitis may be concomitant with either a spreading or a limited peritonitis. Both of these forms of peritonitis begin with the same complex of symptoms, and it is not feasible to discriminate between them for the first twenty-four to seventy-two hours. The presence of any of the local signs of a general peritonitis will of course justify the diagnosis of a progressive peritonitis. Absence of such symptoms or their strict delimitation to the right iliac fossa will indicate a circumscribed peritonitis. In perforative circumscribed peritonitis a tumor will show itself in from two to five days. The difficulties of diagnosis are increased in these cases, because even when a higher grade of inflammation exists from perforation, there is sometimes no local pain over the seat of the lesion. The temperature record, too, in cases of perforation, is often fallacious, for it is not of infrequent occurrence among such cases to find the temperature subnormal. I can recall at least one case illustrative of this observation. In this case ulceration of a colloid cancer of the cæcum terminated in perforation of that organ. No clinical evidence of a peritonitis could be obtained, but when the autopsy was performed sixty-four hours after the probable time of perforation and sixteen hours after death, the characteristic appearances of a peritonitis of many hours' duration stood revealed. Again, the classical signs of suppuration cannot always be observed. There is at times a marked disproportion between the symptoms indicative of suppuration, and the actual operation of that process in the person of the patient. I have seen at least two patients in whom pus had formed who lacked the usual symptoms of suppuration.

The relative anatomical position of the cæcum and appendix with their peritoneal attachments is favorable to the appearance of the tumefaction in the right iliac fossa, when the former organ happens to be the seat of the lesion. Hence when the swelling is not evident by palpation in this region, and the lesion is then suspected to be located in the appendix, it is very important to examine per rectum. Dr. Wm. Pepper, of Philadelphia, lays great stress upon the necessity of making such examination early in the history of the case, in

order to determine the existence of inflammatory swelling and pus. In the differential diagnosis between retroperitoneal and intraperitoneal abscess, and between appendicitis and perityphlitis, many difficulties are involved. A sudden outburst of the symptoms of a localized peritonitis points decidedly to the occurrence of a perforation of the appendix. Inflammation of the cæcum and the cellular tissue behind it is *slower* in development.

General peritonitis resulting from a perforation of the appendix differs from a general peritonitis resulting from perforation elsewhere in this, that, in the first instance, the pain and tenderness begin in the right iliac fossa, that the inflammation is of more gradual extension, and that collapse is slower in its course. In order to determine whether pus be present, aspiration has been resorted to. Dr. McBurney, who does not look with favor upon the use of the exploring syringe, and in the beginning of the illness he unqualifiedly condemns its use, in which, doubtless, we all coincide. But it must be conceded that the risks are diminished if the procedure be reserved for cases in which the symptoms have lasted several days, and in which a distinct indurated tumefaction can be defined. In one of my cases in which it was doubtful whether pus were present, inasmuch as the signs of suppuration were absent, aspiration was resorted to, and revealed its presence. The aspirating needle should be inserted obliquely, for when it is done so, the contents of the tumor are less apt to escape into the free peritoneal cavity and light up a general peritonitis. Dr. W. Gill Wylie, in a discussion on this subject at a meeting of the Northwestern Medical and Surgical Society of New York City, alluded to a number of cases occurring in Bellevue Hospital, in which such a catastrophe resulted from inserting the aspiratory needle in a vertical direction. We have also been warned of the risk involved in the insertion of the exploratory needle into an inflamed and ulcerated cæcum, lest a suppuration be induced thereby, which otherwise might not have developed. This, I imagine, is not so very likely to occur.

Not so very long ago, the rate of mortality of this disease among the young was estimated to be as high as seventy per cent., and that forty-four per cent. died within the

first seventy-two hours. Greater precision in diagnosis and a more rational management of the disease have enabled us to greatly reduce this high rate of mortality. Ordinarily, when the disease is restricted to the cæcum and its surrounding tissue, the attack under the approved medical treatment will most likely be conquered. But unless care be exercised until all tenderness about the affected region shall have positively disappeared, relapses may be looked for. Dr. McBurney denies that the symptoms of the disease are in direct ratio to the gravity of the disease in a given case, and therefore deprecates the advice given by some writers to depend upon such relationship. It has been aptly said by Dr. Fagge, "that the course of the disease depends very largely upon the plan of treatment which may be adopted, for when the case is skillfully treated recovery may be anticipated." Though this be so, we must yet be guarded in our prognostications, for complications may unexpectedly arise at any moment to vitiate the promising outlook.

As regards treatment, the cognate affections—typhlitis, perityphlitis, paratyphlitis, and appendicitis—may all be considered as varieties of a localized peritonitis originating in the neighborhood of the cæcum. Therapeutically considered, we may follow Treves in his division as follows: First, there is the mild form, which is amenable to simple medical treatment, and usually ends in resolution. Secondly, a form which ends in suppuration nearly always depending upon some trouble originating in the appendix, and in which a prompt and definite surgical interference is indicated. Thirdly, the relapsing type of appendicitis, in which operation should be done only after the inflammatory symptoms have subsided.

In the treatment great efforts should be made to secure if possible a termination of the attack in resolution. Absolute rest should always be enjoined in the treatment of a case of this disease. In the young, particularly in those instances in which colicky and obscure pains are experienced at varying intervals, the least tenderness and pain in the right iliac region should be viewed with suspicion, and should prompt us to enforce the principle of treatment just mentioned in conjunction with a proper kind of diet. For in these insidious cases

among children, perforation has been known to result after the administration of a laxative, or the use of enemata.

A very important thing in the dietetic regimen is the undesirability of letting milk form the staple article of diet in these cases. The milk is to be discarded or at least curtailed, because the hard curds formed by the coagulation of the caseine will act as irritants to the inflamed tissues. Hence meat juices and extracts, beef-tea, chicken, veal, and mutton broths, are to be preferred in the nourishment of the patient. Unusual obesity of the patient rather dictates an expectant mode of treatment. Usually the patient has taken a cathartic before the physician is summoned. If not, a mild laxative may be administered in the beginning of the attack. Later cathartics and enemata must be withheld. To relieve the pain opium and its alkaloids, morphine or codeine, which latter is preferred by many, should be prescribed. Local depletion, counter-irritation, and warm fomentations are employed at the same time. In young children, Silberman prefers the use of chloral hydrate to that of opium. In a case of simple typhlitis due to faecal retention, saline cathartics in moderate doses with an ample quantity of water will be serviceable. The employment of leeches in the management of these cases has received considerable attention. It has been recommended to apply from four to eight of them where the pain is most prominent. Sinapisms, tincture of iodine, and blisters have been used as counter-irritants, particularly if the tumor appears slowly.

In reference to the use of cold or warm local applications no uniformity of opinion seems to prevail. The broad statement has even been made that the feelings of the patient should decide which should be employed. Though *a priori* cold would seem to be indicated, I prefer the warm applications. My reason is, that the warm fomentations would encourage the production of a plastic circumscribed peritonitis, so that in case pus should form it would become encapsulated, so to speak, shut off from the general peritoneal cavity, and less liable to burst into it. Cold, though it may be grateful to the patient, will hinder this process. For the support of the flexed thighs a pillow should be placed under the knees. In

persistent vomiting, rectal feeding and stimulation may be employed. As local sorbefacients, belladonna, mercury, and iodide of potassium ointments have been suggested. I omitted to mention that one drawback to the use of warm poultices locally is the production by their use of a superficial œdema, which may obscure the local evidence, and thus interfere with the accuracy of diagnosis. To relieve the uncomfortable feeling of distention when excessive tympanites is present, rectal bougies should be used to lead it off. Puncture of the intestines to relieve this condition must be condemned in these cases as perilous on account of the paralyzed state of the intestinal walls.

Inasmuch as many patients who exhibit all the typical symptoms of the disease recover without resort to surgical measures, it must be acknowledged that as yet we have no unvarying rule to guide us in determining which cases do and which cases do not need operation. If after the first three or four days no abscess can be discovered by physical exploration, surgical interference is not to be thought of. If, however, the patient is growing daily worse, and there be evidence of pus after the third day, an exploratory operation should be performed before the end of the first week, or as soon as the symptoms demand it. If pus be found, the operation should be carried on to its conclusion. In doubtful cases the risk of an exploratory operation is less than the risk involved in the evolution of an attack of the disease. Besides, tumefaction is not always distinct and not always perceptible, therefore, it cannot always be relied upon as a guide to operation. In acute, rapidly progressive cases, even if no pus can be discovered, an exploratory incision is justifiable. A fulminant peritonitis, due to ulceration and perforation of the appendix, calls for early operation, for delay here invites a fatal termination. In order that the operation may be successful here, it must be performed at the onset of urgent symptoms.

The results of early operation have been so favorable that so soon as a tumor, accompanied by the symptoms of suppuration, has formed, and it can be distinguished, it should be subjected to surgical treatment. Such eminent surgeons as McBurney, Bull, Weir, Abbe, Fitz, and Sims are in favor of

early operation. It is claimed that early operation diminishes the risk of the extension of the inflammation, and the danger of rupture into the general peritoneal cavity. If a spreading and a threatened general peritonitis shall have been lighted up, then the major operation of laparotomy is indicated.

In his excellent paper,* read before the Practitioners' Society of New York City, Dr. R. F. Weir urged that, inasmuch as the mortality is greater before the third day when a perityphlitic abscess has resulted from a perforative appendicitis, the pus, so soon as it was recognized, should be evacuated, extraperitoneal, if possible, or else by a lateral laparotomy with drainage of the cavity. He also states that if aspiration fails to detect pus whenever a tumor can be discovered, then an extraperitoneal incision should be made as for laparotomy.

Absence of urgent symptoms or their strict localization will, in my opinion, warrant a delay of varying length. Here within a reasonable time, after the beginning of the disease and after exploration shall have revealed the presence of pus, the abscess should be evacuated by aspiration or by incision, which must reach the pus whether it be extra- or intraperitoneal. It will not be out of place to narrate briefly, in this connection, the history of a case of perityphlitis which occurred in my practice, in which the abscess was evacuated by aspiration, the patient making a perfect recovery.

CASE.—Harry F., aged five years, was suddenly seized with severe pain in right iliac region. He was treated in the manner indicated in the earlier part of this paper. Within four days a slight swelling was discerned on the seat of pain. Dr. Varick, of Jersey City, was asked by the family to see the patient with me. The doctor agreed in the diagnosis of perityphlitis with possible abscess, and we decided to aspirate in order to verify our surmises. We succeeded in obtaining pus with the exploratory syringe. On the following day the patient was anæsthetized, and with a Dienlafoy instrument about four ounces of fetid pus was removed. Nothing worthy of note occurred from that time on to his ultimate recovery.

Collapse and hyperpyrexia are contraindications to opera-

* New York Medical Journal, May 6, 1887.

tion. For obvious reasons no purgative whatever should be given before operation. Great abdominal distention should, if possible, be relieved before operating. After an attack shall have passed by, the greatest care is necessary to prevent a relapse. No purgatives should be given, the bowels being moved by enemata only. For a short while after recovery, restriction to liquid diet should be enforced. The patient should not be permitted to get up too soon. Recurrences of the attack, which are so lamentably frequent, can often be prevented by regulation of diet, moderation in daily exercise, and securing regularity of stool. Tonics and stimulants should be administered to regulate the peristaltic action of the bowels and to improve the general health of the patient.

Children who have passed through an attack of this disease, and even those who frequently complain of abdominal pain, should always wear a tight bandage to keep the bowels from jolting. In conclusion, let me recapitulate in a formulated summary the treatment of the disease as suggested by our present knowledge of the subject.

First, in cases of a chronic or subacute perityphlitis, without a tumor or with a small tumor, the expectant plan of treatment may be followed.

Secondly, in cases of chronic or subacute perityphlitis, with a growing tumor with or without evidence of suppuration, extraperitoneal incision or aspiration should be done.

Thirdly, in cases of acute perityphlitis with threatening symptoms with tumor, and hyperacute cases without appreciable tumor, exploratory incision (extra- or intraperitoneal) should be made.

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DISCUSSION.

DR. PUTNAM.—I have two slight points to speak of. One is in regard to the pain. The pain of a general peritonitis is likely to be more diffused than that caused by local peritonitis, but it is not always so. The pain is not localized at all at the beginning of one of these attacks. Localization is often made out by the physician before it is by the patient. I mention this merely because I have seen physicians led

astray by not finding out that the absence of local pain did not mean that the disease was not local. As to food, one does not want to give up too readily the administration of milk; very much diluted milk, in small quantities, will give a child better nourishment than chicken broth, which is principally salt and water with a little fat. Chicken broth is slightly nutritious and gives fluid, but is not to be compared with milk.

(To be continued.)

Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

Hepatic Syphilis: its Difference in Children and in Adults—Impetigo of the Conjunctiva in Children—Treatment of Impetigo in Children—On the Use of Terebinthina Oleum in Children's Diseases—Treatment of Catarrhal Otitis in Children—On Dispensaries vs. Hospitals for Children—Infantile Mortality—Mortality in Diphtheria—On the Curative Treatment of Throat Diseases Outside of Diphtheria—The Increase of Weight in Infants During Lactation.

Hepatic syphilis: its difference in children and in adults.—The late Professor Chauffard has a brilliant son who is now a *professeur agrégé* at the Paris faculty, and physician to Hôpital Broussais. Dr. Chauffard in a recent clinic on the above subject gave a very clear idea of the important differences that exist between this disease in children and adults. He said, "It has been often said that infantile pathology did not constitute a clearly-defined specialty, and while it may be true that a certain number of diseases have points in common both in adults and infants, still, a very large number of maladies are entirely different in infants, and have special and separate characters distinct from the same trouble in adults. Syphilis of the liver is one of these, and the principal differences may be classed under two heads. 1. The difference in etiology. 2. The pathogenic. As to the first, liver syphilis is in the adult an acquired disease. It is true that an infant may get syphilis, but if it should do so, it would not go to the liver, so it may be said that, in the child, hepatic syphilis is always hereditary. Next as to the pathogenic differences. An adult gets his hepatic syphilis just as he would cerebral or any other syphilis. That is to say, that the syphilitic germs attack by the liver or

any other viscera by the arterial route. It is in fact a *pro-
cessus endoarteritis*, and the disease is propagated or carried
by the hepatic artery in this case.

"Now it is entirely different in the infant. If you will call to mind your anatomy of the foetal circulation, you will remember that the mother's blood comes by the umbilical vein directly into the liver, carrying from the placenta the nutritive principles furnished by the mother, and most likely with them the germs of the disease. This is why hepatic syphilis in the infant is so diffused and massive in its character.

"It is not at all the same in the adult. [A case in point in the hospital was shown.] A woman who had entered with syphilis in her fourth month of pregnancy, had been put under specific treatment at once, and when the baby was born it looked well, but after two months it was found to have an immense liver that was hard and painful; mercurial inunctions of three grammes a day were given, and the child took by the skin three hundred grammes of mercurial ointment, or one hundred and fifty grammes of metallic mercury, in three months. This proves the wonderful tolerance that children have for this drug, as it neither got stomatitis nor eczema during the treatment. When born it weighed three thousand grammes (six French pounds), and six months afterwards it weighed six thousand five hundred grammes, so that, notwithstanding the treatment, it followed the well-known rule in healthy infants, which says that 'they should increase double their weight in six months.' The pathological anatomy of hepatic syphilis in children and adults is also quite different. While in the child the liver is found so hard and elastic that it is called '*silex liver*,' and it has very small gummata diffused all over its surface, making these lesions quite uniform in character. In the adult the syphilitic liver is extremely deformed, '*tied up*' it is called, and large irregular gummy tumors bulge out in its substance."

Dr. Chauffard recommends in infants of this sort to give them a prolonged treatment of mercurial ointment in doses of at least two to three grammes per day with .25 to .50 of potassium iodide, and continue without interruption for months. In adults more care must be taken with larger doses, five to six grammes of ointment with four to five of potassium iodide, but the mouth must be watched for the symptoms of stomatitis, which, as we said, was rare in infants.

Impetigo of the conjunctiva in children.—Professor Panas, in a late clinic at *Hôtel Dieu*, Paris, called attention to this trouble. Presenting a little child of four years of age, he said, "You notice that this little one's eyelids are swollen, red, and, in fact, inflamed, and this morning they were stuck together. When

I open the eyelids they allow a flood of pus to escape, and many would at once make a diagnosis of purulent ophthalmia, and order cauterization with nitrate of silver; and, as only one eye is attacked, they would only look upon that as an additional proof of the contagious nature of the malady. But if you examine this child closely you will find on its face a slight impetiginous eruption. This is important, and, if you only find a single scab of impetigo, it is enough to indicate to you what the affection is. Besides, between this conjunctivitis and the real purulent form there is a great difference. Notice the pus; it is not serous, lemon-colored, like the pus of purulent ophthalmia, but white and thick. For many years good surgeons have been telling us of good and bad pus. If, now, we open the lids well with the Demarree's hooks, the conjunctiva is seen looking intensely red and smooth, but the cornea is healthy, and around it is seen a series of small purulent vesicles that remind you in miniature of the impetigo you saw on the face. This child is four years of age; don't forget that; and remember that it has a malady that is never seen in the newly-born, but it is rather common up to nine years of age; from about three, purulent ophthalmia is, as you know, quite common in the newly-born infant. What is this? It is *impetiginous ophthalmia* or *impetigo of the conjunctiva*, and all doctors must learn early to recognize it so as not to make a perhaps fatal error, not only of diagnosis but of treatment. Never use any irritants in this trouble, such as sulphates of zinc and copper, and, above all, not nitrate of silver. The proper treatment should be antiseptic and antiphlogistic. This little patient will be put on a solution of four per cent. boric acid with a little glycerin in it. The eye will be washed out carefully with this by a continuous jet, and then covered over with a cloth wet with the same liquid. When the inflammation has subsided, we will rub it with a pomade of vaseline and iodoform, and also employ vaseline and the yellow binocide of mercury ointment." The child under this treatment got perfectly well, the cornea never losing its transparency.

Treatment of impetigo in children.—While speaking of this disease, we may as well give M. Gallois's ideas of its treatment. He bases it on occlusion by topical applications, mostly of iodoformed collodion. For the head a rubber cap is advised, and in the hair some vaseline made thick by wax is used. On certain parts of the face where collodion cannot be used a borax pomade can be put on. In all cases it is best to get rid of the scabs by covering them with a rubber bandage, and then washing the part well before using the applications advised. It is also useful to give the child a bath once a week

in which two grammes of hydrargyri bichloridum is put to about sixty litres of water (sixty quarts). Its clothing is then all changed and new given, and its nails are carefully cut to prevent reinfection by them.

On the use of terebinthina oleum in children's diseases.—The writer has been frequently struck with the good results from the extremely common and popular use of turpentine in the usual throat and chest complaints of infants, and, indeed, in adults both in professional and in family circles here. As soon as there is the least signs of whooping-cough or any bronchial trouble they commence using turpentine. A very favorite method is to make a mixture of equal parts of turpentine and oil (olive), and this is rubbed twice a day on the front and back of the thorax and down the arms as far as the elbows. The patient is then covered with a light flannel and the usual dress put on over this, and if they are fairly well they are allowed to run about the house or garden. By the movements of inspiration and expiration, as well as by the heat of the body, the vapor of the turpentine is given off and is breathed by the little patients by the mouth and nose, and the symptoms disappear rapidly. Under the action of this simple remedy we have seen cough cured very quickly. It may be said to be only a modification of the well-known method of vaporizing essence of turpentine in the patient's room; but it has the advantage of allowing them to go about, or even out of doors, and carry their remedy with them. As to the theory of the action of turpentine vapor, most writers think that the pine vapor modifies the air, seeming to ozonize it, and perhaps ozone acts as a germicide in these cases, which it certainly is. It is possible that there may be some better explanation for its undoubted efficacy, but this extremely useful and simple method of cure deserves mention here.

Treatment of catarrhal otitis in children.—In the newly-born make injections with poppy decoction into which a three-per-cent solution of borax-water is put. As for the pain, it is kept under by putting a little morphined oil on a tampon of cotton into the ear, and when the acute period is over salol in powder may be blown into the ear. When the child is three or four years of age revulsion can be added behind the ear with a small vesicating plaster, to be removed after twenty-four hours, and the bit of cotton put into the outer ear may now be imbibed with saturated chloroformed oil, and more constant irrigation performed with a four-per-cent. solution of borax-water.

On dispensaries vs. hospitals for children.—There is a marked tendency in France among medical men and the public to

protest against sending children who may be ill to hospitals, as the mortality there is so great and the risk of contagion from other maladies is so much more than at home. This has led to rich people giving large sums to create dispensaries, where the children can be treated and sent to their homes afterwards. Quite a large number of infants and children are afflicted with chronic diseases, such as rickets and the so-called scrofula and tubercular troubles. In the hospitals they do very badly; they need, in fact, good air and outside treatment. The mothers with children in arms are also best treated outside of regular hospitals, and they can also be taught hygienic principles best at dispensaries. Each quarter of the large cities should have a well-equipped dispensary for this purpose, which should be furnished with all the modern appliances for baths, gymnastics, and electrical apparatus, as well as have a staff of *masseurs*, male and female. The drug or medical department should also be well provided, and separate rooms should be arranged for maladies that are contagious and those that are not. In France the wealthy class have already endowed several of these capital institutions. A fine model establishment of this kind can be seen in Paris in the fourteenth *arrondissement* (or ward), called Madame Furtado Heinés. There is also M. Ruel's in the fourth, and in Havre can be seen M. Gibert's, while in Geneva, M. D'Espines. These dispensaries must of course be outside of private enterprise to succeed, as, if these poor patients are made to pay, they will not come to them; and they should have a sea-side sanitarium in direct connection with them, so that the children who need sea-baths and air could be sent to the sea-side.

Infantile mortality.—A medical commission under Dr. Gallez gives some interesting statistics of this question. It would seem that the general mortality is constantly *decreasing*, but infantile mortality is just as constantly *increasing*. From 1869 to 1872 the general mortality was twenty-four, forty-three per thousand, and from 1885 to 1888 it was twenty, twenty-five (or 4.18 diminution) per thousand. This in a population of six million means an annual saving of twenty-five thousand lives. Now, in one thousand infants under one year of age one hundred and forty-eight died yearly from 1869 to 1872, and one hundred and fifty-nine from 1885 to 1888, so that there is an increase in infant mortality that is important. The commission proposed to publish these facts, and to issue some printed popular instructions showing the benefit derived from antiseptic precautions as applied to confinement and the care of the baby afterwards; during the first year they hope to educate up the public to the importance of

these principles and precautions, and decrease the present excess of infant mortality.

Mortality in diphtheria.—While on statistics we may give those lately made by M. Janssens, of Brussels, who has charge of the cities' medical statistics. They refer to the comparative mortality in diphtheria in the different countries of the world. England has forty-one deaths per thousand, Belgium forty-four, Holland fifty-three, Switzerland fifty-nine, Italy seventy-nine, France eighty, Germany one hundred, Russia one hundred and ten, Spain one hundred and twelve, Austria one hundred and sixteen, America one hundred and forty. If America means the United States, we are at the bottom of the list, but perhaps it includes South America.

On the curative treatment of throat-diseases outside of diphtheria.—While speaking of diphtheria, we can call attention to the growing use of antiseptic treatment in simple sore throats. It is now generally admitted and agreed that in diphtheria some form of antiseptic or at least aseptic treatment should be used, but for the simpler forms of throat inflammation, and the catarrhal as well as tonsillar troubles, which are supposed to be caused by cold, the treatment remains for certain doctors what it was,—that is, chlorate of potash or other gargles of an emollient or astringent nature, and yet the simple fact that these troubles are frequently seen in the same family, and at the same time as diphtheritic diseases, would seem to indicate a common origin. The infectious nature of tonsillitis and the other simple forms of throat and bronchial disease or inflammation seems likely, and once this is suspected, if not proved, it should lead to trying antiseptic methods instead of the old astringents. The following is a formula much used in France :

R Acid. Carbol.,
Crist. and Camphor, aa 1 gramme;
Glycerini and Aqua destill., aa 50 grammes;

and this is painted on the inflamed part three times a day. It will be found to have a mechanical action as well as antiseptic one. The first acting by regurgitation; the nausea produced causing an excretion of the inflamed follicles and a rapid curative process; after a first burning or heating sensation by this application there is a secondary anæsthesia produced. If the burning is objected to, a hot solution of borax (four per cent.) may be substituted for the first formula. In one word, it may be stated that all the simple forms of throat inflammation of the respiratory tract are better treated by this method than by the old methods.

The increase of weight in infants during lactation.—M.

Charles, of Bordeaux, in a study of this subject gives the following tables:

Taking a child at birth at 3200 grammes, about six and a half pounds, it should increase as follows:

During the first	three months,	23.00 grammes,—35 per day.
“ “ second	“ “	18.35 “
“ “ third	“ “	13.04 “
“ “ fourth	“ “	8.00 “

Or during

First year,	increase of weight,	5.000 kilogrammes (12 French pounds).
Second year,	“ “ “	2.000 “
Third year,	“ “ “	1.200 “
Fourth year,	“ “ “	1.400 “

So, from the 0	year to fifth	year the increase is	12.000 kilos, 590.
“ “ “ fifth	“ “ tenth	“ “ “	8.750 “
“ “ “ tenth	“ “ fifteenth	“ “ “	19.100 “
“ “ “ fifteenth	“ “ twentieth	“ “ “	16.400 “
“ “ “ twentieth	“ “ twenty-fifth	“ “ “	2.780 “
“ “ “ twenty-fifth	“ “ thirtieth	“ “ “	0.720 “
“ “ “ thirtieth	“ “ fortieth	“ “ “	0.720 “
“ “ “ fortieth	“ “ fiftieth	year decrease in weight	0.210 “
“ “ “ sixtieth	“ “ seventieth	“ “ “	2.000 “
“ “ “ seventieth	“ “ eightieth	“ “ “	1.690 “

These tables show that during the time when we are being fed with milk only is when we increase the most (twelve pounds in the first year).

Current Literature.

HYGIENE AND THERAPEUTICS.

Hirst, B. C.: *An Effort to Obtain a Perfect Substitute for Human Milk.* (*Medical News*, Phila., 1891, lviii. 5.)

The disadvantages attaching to the use of cow's milk—the only practicable substitute for human milk—in the feeding of infants may be summed up as follows:

Cow's milk differs in the proportions of its chemical constituents from human milk.

Cow's milk, as ordinarily obtained, especially in summer, swarms with many varieties of microbes, and is contaminated perhaps with the products of their activity. It is, moreover, acid. Human milk, on the contrary, is drawn from the breast and received into the infant's stomach sterile. It is alkaline.

Cow's milk can be administered in almost unlimited quantities and at any interval. Human milk is supplied by the mother's breast in quantities and at intervals suited to the demands of the infant's economy.

To the theoretical student of the subject, at present it might seem that every difficulty has been removed. One can construct, with cow's milk as a basis, a correct chemical imitation of human milk, it can be administered in a sterile condition, and we have definite and correct ideas in regard to the quantity of food to be given at each feeding, the interval that should elapse between the feedings, and the rate of increase in quantity required from month to month. With such knowledge, which is but recently available, it would seem possible to construct an artificial infant food equal in all respects to the mother's milk. But the confidence inspired by this idea would sooner or later be rudely shaken in practice.

From my own observation, and from what I had heard of others' experience, I had already learned to suspect that sterilization is the disturbing factor in the effort to produce an ideal infant food. With this idea, Dr. Hierstand undertook for me a careful chemical study of the effect of sterilization on milk. The following is an epitome of the ascertained results of sterilization:

1. Albumen coagulated.
2. Caseine less readily precipitated by rennet than in normal milk. Acid corrects this condition.
3. Fat is freed to a slight extent; fat not freed has a lessened tendency to coalesce.
4. Sugar undergoes some change, as shown by its lessened dextro-rotatory power.

The considerations suggested by a knowledge of the foregoing facts are,—

1. The coagulation of milk-albumen by sterilization may render the milk more difficult of digestion.
2. Sterilization interferes with the coagulability of milk by rennet, and presumably, therefore, with its digestibility by the gastric juice.
3. Free fat, as found in sterilized milk, is probably not readily assimilated in infant food. The fat not free, being enclosed in a less-easily destructible envelope, is probably slow of digestion.

Being sure that the chemical study would bear out the theory in regard to the effect of heat upon the fat-globules and albumen, I adjusted the clinical work to this idea. The only way to obviate the action of heat lay obviously in a partial predigestion of the milk and cream; and the only agent at our command to accomplish this result is pancreatin.

If predigestion with pancreatin really affects the fat-globule and makes it easier to free the fat, this action should be demonstrable by the different effects of churning upon predi-

gested milk and cream, upon sterilized predigested milk and cream, and upon sterilized milk and cream. In the first, three minutes' churning of half a tumbler of the mixture produced enough butter more than to fill a teaspoon; in the second, less than four minutes' churning of one and a half ounces produced a good-sized lump of butter; in the third, it took about twelve minutes to form butter at all, and there was not as much by that time as had been produced by four minutes' churning of the predigested sterilized specimen.

Still retaining the chemical proportions suggested by Meigs, with the single exception of sugar, and observing the rules for quantity and interval suggested by Snitkin and Holt, the following card was drawn up:

[FRONT.]

1. Have ten nursing-bottles prepared clean every morning.
2. Take

Cream 5 ounces.
Milk 2½ "

3. Put in skillet; add pancreatin powder; heat over alcohol flame for six minutes; stir and sip constantly; *do not overheat.*

4. Of this mixture, put in each bottle six drachms (to make two-ounce bottle). Use funnel.

5. Add to each bottle ten drachms sugar solution.

6. Stopper the mouth of each bottle with dry, baked cotton, and sterilize for twenty minutes.

7. Set aside to cool.

8. Before use put bottle in warming-cup; apply nipple immediately before giving to infant.

Make sugar solution by dissolving one ounce sugar of milk in a pint of warm water. The pancreatin powder, for the quantity indicated on the card, consists of pancreatin, two and a half grains, and bicarbonate of sodium, five grains.

[REVERSE.]

AGE.	Interval.	No. of Feedings in 24 Hours.	Am't of Food at Each Feeding.	Total Amount in 24 hours.
First week	2 hours.	10	1 ounce.	10 ounces.
Second to fourth week	2 "	9	1½ ounces.	13½ "
Second to third month	3 "	6	3 "	18 "
Third to fourth month	3 "	6	4 "	24 "
Fourth to fifth month	3 "	6	4-4½ "	24-27 "
Sixth month	3 "	6	5 "	30 "
Eighth month	3 "	6	6 "	36 "
Tenth month	3 "	5	8 "	40 "

The objection urged against a partial predigestion of an infant's food, that, by so doing, one deprives the digestive juices of their natural work, and thereby incurs the risk of atrophy of the digestive glands, while at first sight forcible, is in reality weak. If, by this method, the food-mixture is reduced to a condition in which there is about as much for the child's digestive powers to do as though it were fed on human milk, there is no danger of abrogating any digestive function.

Lieber, A. J.: Pseudo-Membranous Laryngitis treated by Mercurial Fumigation. (*Am. Pract. and News*, 1891, xi. 397.)

The writer reports one case. A male, three years old, with diphtheritic membrane on both tonsils, which ran a mild course for five days, when there was evident extension to the larynx. One-forty-eighth of a grain of bichloride of mercury was given every three hours and the oleate of mercury freely used by inunction. The vapors from slaking lime were faithfully used.

Under this treatment the disease rapidly advanced, and twenty-four hours later it seemed to me that a fatal termination could not be long deferred. Permission to do tracheotomy was refused. Then mercurial fumigations were tried. The child was placed in an improvised tent, and thirty grains of calomel were burned under it every half hour for six hours, I having ordered it repeated as often as the character of the respiration became alarming. The next morning the patient was decidedly better, and the intervals of fumigation were extended to three hours. The following night it was used twice; the next day once; and it was not required after that. A good recovery followed.

The method of using these fumigations is as follows: The apparatus consists of a tent and an alcohol lamp with arms to support a piece of sheet iron. A good tent may be quickly constructed in the following manner: Each post of the child's bed is extended by fastening to it in an upright position a bed-slat; the frame is completed by cross pieces above; sheets to cover the frame complete the tent. The child is placed in the crib at one end, the lamp is lighted, the sheet-iron plate is adjusted and heated, and thirty grains of calomel are dropped upon it. The lamp is then placed under cover at the end not occupied by the child; the vapor quickly rises and fills the tent. The usual time of each treatment is ten minutes, but may be varied if circumstances indicate. The attendants should be cautioned not to inhale the fumes unnecessarily as mercurial poisoning is quite certain to result. In the patient,

however, this effect does not follow. The temperature and humidity of the room should be the same as with any other treatment of the same disease. It is well to have the use of two rooms, reserving one to be used only while the treatment is in process, and thoroughly airing it after using.

Highley, G. N.: *Hygiene of Infancy*. (*Med. and Surg. Rep.*, Phila., 1891, lxiv. 122.)

The following rules of guidance seem to be as near correct as the present state of our knowledge will warrant.

Use every reasonable effort to have the mother nurse her child. If this is impracticable, endeavor to obtain a supply of pure cow's milk twice daily, if possible. Use the best means possible to protect the milk from fermentative changes (or from bacteria if you choose). Use the following mixture, if possible: For an ordinary eight-ounce nursing-bottle: milk, one ounce; lime-water, one-half ounce; cream, one and a half ounces; milk sugar, one-half ounce (three and a half drachms); water, four and a half ounces. Otherwise give the milk pure, or simply diluted with water and a little lime-water. Give it at regular intervals and never at shorter intervals than three hours. A single feeding should not occupy over half an hour; nor, on the other hand, should the milk be taken too rapidly. After using, the feeding-bottle should be thoroughly scalded and cleansed. Clothe the infant lightly in hot weather. Bathe it frequently, using soap sparingly. Keep it in the outside air as much as possible, especially in the early morning and the cool of the evening. Above all, remember that heat is the most important factor in the causation of disease.

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